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ILLUSTRATIONS IN TEXTBOOKS
Sterling Dow

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BUREAUCRACY AND HIGHER EDUCATION
Charles H. Page

The University of Chicago Press

The Journal of GENERAL EDUCATION

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THE JOURNAL OF
GENERAL EDUCATION

VOLUME V *January* 1951 NUMBER 2

EDITORIAL COMMENT

Reuben Frodin

In the October issue of this *Journal* there were printed several sharply contrasting treatments of an important historical problem—the fall of Rome. Livio Stecchini, in introducing the essays of the French scholar, Piagniol; the Russian, Mashkin; and the German, Max Weber, stated that the student studying such material—and discussing it in class—should be enabled to develop critical judgment for dealing with complex and controversial matters. The student would have an increased realization of the substantial agreements among scholars and writers in the various historical presentations, despite wide methodological differences.

Teachers of history and social science are, of course, confronted continually with the problem of conveying to the student what their discipline (or the disciplines) can and cannot do. One is tempted to think—and not uncharitably—that the teacher occasionally forgets that this is one of his first responsibilities. Perhaps this is so because the student wants to continue believing that many more "things" are true, correct, fixed, and the same than are. Textbooks in history and the social sciences which do present "unsettling" views of our society are then attacked as being "very seriously weighted in the direction of the radical." While the teaching of complex and controversial issues involves difficulties, the social scientist can, and must, bring to his task the skills which the subject matter demands. Unless he does, one of the challenging opportunities, particularly in the late high-school and early college years, for the training of the thinking citizen is lost.

It was to indicate how a complicated historical problem might be studied in the limited time available in a general college course that the *Journal* printed a selection of materials on a thousand-year-old issue, the fall of Rome. Topics of American history and contemporary social problems are recent, and the layman should expect—as the teacher does—that education in the social sciences must deal with different methods, principles, and points of view. Because social problems (viz., on the subject of recent American foreign policy) are what they are, it is not surprising that the "confusions" and "differences" of the various subject matters should create difficulties for those responsible for curriculums of general education. The problem confronting the social scientists is to select a limited amount of significant and teachable material from the disciplines which make up the social sciences. Two customary solutions in the last twenty-five years—the introductory survey of some or all of the separate disciplines and the "current-events" type of course—are now widely recognized as inadequate. The most promising new development has been in terms of "themes," "problems," or "issues" which have broad significance in our society and which re-

quire the simultaneous use of several related disciplines for satisfactory treatment. Whether the theme happens to be problems of American democracy, personality and culture, freedom and authority, national sovereignty and world order, or the history of Western civilization, the interdisciplinary approach is presupposed in all such courses.

The articles by David Riesman, Talcott Parsons, and Mark May in this issue of the *Journal* illustrate three different patterns of interdisciplinary integration in the social sciences. The pattern illustrated by Mr. Riesman's paper is that of a full year's general social science course within the framework of a nondepartmentalized curriculum. Harvard's Department of Social Relations (described by Mr. Parsons, its chairman) is an attempt to achieve integration through the creation of a new academic department, which, among other things, consolidates several older departments. Mr. May describes a research institute at Yale which was set up to achieve interdisciplinary integration without disturbing the separate departmental organizations.

There are many differences among these three patterns: the degree of responsibility for undergraduate teaching, research, support, administrative organization, etc. But there are also some striking similarities which enable one to draw some conclusions about the conditions for effective integration in the social sciences. Milton Singer, professor of the social sciences in the College of the University of Chicago and a member of the editorial board of the *Journal*, after reading these three papers, points out two of these conditions. He writes:

"First, there is the actual convergence of several different disciplines to the point where it becomes possible to construct a common theoretical framework embracing all of them. In the case before us the convergence involves certain portions of cultural anthropology, sociology, psychology of learning and personality formation, and social psychology. Secondly, there is a group of scholars and teachers familiar with at least one of the converging disciplines seriously enough interested in the problem of integration to listen to, and learn from, the opposite members in the other disciplines. If these conditions are absent, no amount of research funds, conferences, collaboration on specific technical problems, distinguished reputations, and training requirements is likely to achieve a fruitful and significant mode of integration in the social sciences."

BUREAUCRACY AND HIGHER EDUCATION

Charles H. Page

THIS paper proposes to examine the nature of a highly significant trend taking place within the edifice of "higher learning" in America, to suggest some of the sources of that trend, and to indicate certain of the consequences of the bureaucratization of higher education on the structure of colleges and universities and on teaching and administrative personnel. Much of the discussion will be seen to be applicable to the entire organization of schooling in this country.

It must be stated at the outset that this is not a consideration, except tangentially, of significant matters discussed in Harvard's *General Education in a Free Society* or those presented in the report of the President's Commission on Higher Education or even those sprightly observations in such books as Jacques Barzun's *Teacher in America.* Rather, the focus of these remarks is upon the functions, manifest and latent, and the structural consequences of the specific factor of bureaucratization in college and, especially, university life.[1]

Necessarily, this paper is one-sided. That is, in order to forward the case, the inevitable practice is used of loading the dice, loading them in this instance so that the bureaucratic aspects of organized education will turn up with reassuring frequency. That there are other aspects we all know. It should also be noted that this paper is not a plea. Rather, it attempts a more or less systematic statement of a trend and some of its results, which may be judged good or bad. There is here no hidden urgency to cry out against, to sing praise to, or to recollect with nostalgia the "good old days" when things were better. Possibly they were, perhaps not.

[1] The concepts of manifest and latent functions have been most satisfactorily explained and applied by Robert K. Merton (see his *Social Theory and Social Structure* [Glencoe, Ill., 1949], chap. i).

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THE BUREAUCRATIZATION OF MODERN LIFE

In its ordinary usage "bureaucracy" is a loaded term. In the literature of modern social science, however, "bureaucracy" has come to be a precisely defined and morally neutral concept, possessing, as must be the case with all theoretically useful concepts, the quality of general applicability to a certain range of empiric phenomena. Bureaucracy is one of the several types of social organization, deliberately developed so that, within it, officially designated offices and roles are functionally geared to the fulfilment of specifically prescribed ends or missions. In bureaucratic organizations of this general type, Robert K. Merton writes:

> There is integrated a series of offices, of hierarchized statuses, in which inhere a number of obligations and privileges closely defined by limited and specific rules. Each of these offices contains an area of imputed competence and responsibility. Authority, the power of control which derives from an acknowledged status, inheres in the office and not in the particular person who performs the official role. Official action ordinarily occurs within the framework of preexisting rules of the organization. The system of prescribed relations between the various offices involves a considerable degree of formality and clearly defined social distance between the occupants of these positions. Formality is manifested by means of a more or less complicated social ritual which symbolizes and supports the "peck-

ing order" of the various offices. Such formality, which is integrated with the distribution of authority within the system, serves to minimize friction by largely restricting (official) contact to modes which are previously defined by the rules of the organization. Ready calculability of others' behavior and a stable set of mutual expectations is thus built up. Moreover, formality facilitates the interaction of the occupants of offices despite their (possibly hostile) private attitudes toward one another. In this way, the subordinate is protected from the arbitrary action of his superior, since the actions of both are constrained by a mutually recognized set of rules. Specific procedural devices foster objectivity and restrain the "quick passage of impulse into action."[2]

These are many of the principal structural features of bureaucracy, and it is to this sociological category that an increasing number of organized groups, large-scale and some smaller ones, may be assigned.

Bureaucratic organization, of course, is not confined to modern times. In the administrative apparatuses of governments in certain periods of both early Egyptian and Mesopotamian civilizations, as well as in some stages of oriental, of ancient Greek, and of later Roman regimes, large-scale bureaucratic structures developed and had enormous significance in conducting affairs. Few historians, however, would characterize any of these earlier examples of civilizational accomplishment as "bureaucratic ages"; for, however important bureaucracy may have been, especially in the governing institutions, it does not stand out, as historians look back over the records, as the principal mode of formal social organization.

But in modern times in the Western world, bureaucracy has come of age—so much so, in fact, that no thoroughgoing discussion of social structure today dares to ignore this theme. It is not pertinent here to examine the various historical changes that have permitted—indeed, guaranteed—the monumental growth of bureaucratic structures in many areas of social life. If bureaucracy in the governments of the modern functionally expanding states is the most conspicuous example, the full-blown rationalized administrative hierarchies of modern commercial and industrial life are hardly less so. And if carefully defined goals (whether with respect to services rendered, missions fulfilled, industrial output, or volume of sales), hierarchical organization designed to maximize fulfilment of goals (i.e., blueprint plans of lines of administrative responsibility), precise definition of office and job, expertness of personnel and interchangeability of depersonalized personnel, standardized procedure and red tape —if these are increasingly significant characteristics of government and business and industry and military organizations (to cite the extreme case), they are likewise rapidly coloring the organizational makeup of labor unions, of the larger social welfare agencies, of educational institutions, of scientific enterprise itself (at least in some measure). Not even the field of sport, in its professional or amateur forms, has missed the modern bureaucratic thrust.

No wonder, then, that the emergence of bureaucracy in these various realms has captured the interest of a number of scholars of our day. Foremost among them in analyzing the pattern and in specifying the effects of bureaucracy was Max Weber. It has been said that, if the economic and class changes of Western society produced a Marxist interpretation of those changes, the full blossoming of bureaucracy produced a Weberian analysis of that trend.[3] However that may be, it is to Weber's everlasting credit that he underscored the social importance of growing bureaucracy not only for the society of his own day (he died in 1920) but for the soon forthcoming systems of socialism, limited capitalism, and "totalitarianism." It is clear enough in 1951 that

[2] R. K. Merton, "Bureaucratic Structure and Personality," *Social Forces*, XVIII (May, 1940), 561–68.

[3] Cf. the statement by H. H. Gerth and C. W. Mills (eds. and trans.), *From Max Weber: Essays in Sociology* (New York, 1946), pp. 46–50.

bureaucracy is a conspicuous trait of the modern multigroup, complex social order, whatever the design of its over-all policy.[4]

Weber's writings do not stand alone, of course. But his analysis of bureaucracy has stimulated further and more detailed studies in recent years, including those of Karl Mannheim and of Merton.[5] Economists, political scientists, and sociologists have been concentrating more and more of their attention on the bureaucratic process, so that today we have several theoretically sophisticated and empirically grounded studies of bureaucratic structures: in business, government, and military organization. Few studies of this kind, however, have followed bureaucracy's march into the sacred halls of higher learning.[6] Shortly that march will be followed, at least for a distance. It may be a more meaningful pursuit if preliminary notice is taken of a few of the broader aspects of bureaucratization. Three of these have a special relevance for education itself.

In the first place, full-scale bureaucracy implies standardization. If an organization is to achieve its purposes with the efficiency demanded by the pressures of a money-making, goods-producing, service-rendering, specialistic, expert-inhabited modern world, it must standardize. Standardization assumes its most striking form, of course, in the technological sphere, the instrumental sphere par excellence. But rational organization demands much more than the standardization of tools and machinery: it demands the standardization of administrative techniques, of human operations, of human beings. A bureaucratic system is one which must be able to function, whoever mans the office or the jobs. Like the machine itself, its parts must be cut to a pattern. And spare parts must be at hand when needed, whether the standardized human cogs are top-level "staff" administrators or semiskilled "line" operatives; whether they are classified as "Professional Rating—Grade 8" or "Clerical Assistant—Grade 1"; whether they are designated "Radar-Repairmen—first class"; or, to use an example from professional baseball, whether they are ticketed as good utility infielders up from the Triple-A minor leagues. Wherever bureaucracy has developed, standardization, both of procedure and of personnel, has likewise developed, for standardization is functionally imperative in any bureaucratic system.

It follows, in the second place, that bureaucracy implies, at least at first glance, the diminution of spontaneity. This is a characteristic of large-scale organization. But perhaps in no other area is there as much official and structural discouragement of face-to-face camaraderie, informal co-operation and conflict, and individualistic inventiveness as in the bureaucratic system. It is true that bureaucracy has a side other than its official one, an informal structure within which spontaneity once again raises its nonbureaucratic head; and this, too, as will be shown later, is no less a functional imperative than formality. Nevertheless, almost by definition and certainly by rational plan, bureaucracy is not the characteristic headquarters of spontaneous behavior.

Finally, most bureaucratic organizations, though possibly not all, are established to serve, in one way or another, some special "client-public." Thus the large social welfare agencies refer to the recipients of their services as "cases," the client-counterpart of the businessman or farmer who is serviced by governmental agencies; or the policy-makers of

[4] For Weber on bureaucracy see *ibid.*, chap. viii, and *The Theory of Social and Economic Organization*, trans. A. M. Henderson and T. Parsons (New York, 1947), pp. 324–41.

[5] Mannheim's discussion of bureaucracy is interwoven with other considerations (see his *Man and Society in an Age of Reconstruction* [New York, 1940], *passim*). For Merton's more systematic studies see *Social Theory and Social Structure*, chaps. v and vi.

[6] For some aspects of academic bureaucracy see, however, Logan Wilson's excellent *The Academic Man* (New York, 1942), especially pp. 60 ff. and 80 ff.; and Jacques Barzun, *Teacher in America* (Boston, 1945), chap. xiii.

"big business" or "big labor" who are serviced by their respective staffs of experts; or the citizen body itself, which represents the client-public of, say, the bureaucratic structures of the armed services; or the members of the student body whose educational needs are serviced by ourselves. This obvious point would scarcely require mention, were it not for the peculiarity of the relationship that generally develops between bureaucratic office-holders and their clients. As several recent investigations have shown, the bureaucrat, almost irrespective of his position in the organization, as he becomes expert in the skills of his office and as he takes on the "bureaucratic viewpoint," tends to develop antipathy toward the inexpert clients whom the organization serves. To be sure, such antipathy is not sanctioned by the official doctrine of the bureaucratic organization. To the contrary, many bureaucracies loudly proclaim their ultimate responsibility to those they serve; and some, e.g., welfare agencies and certain governmental bureaus, train and retrain their personnel to avoid any open display of distaste for the inexpert outsider. But this very training suggests the continual strain faced by the office-holder to show a good face before the client-public.[7] This strain, stemming in part from what is often designated the "frustration" of bureaucracy and found, as it frequently is, in the college teacher himself, is but one evidence of the inroad of bureaucracy in higher education.

GROWTH IN THE HIGHER LEARNING

The most apparent indication of bureaucratization in higher education is to be seen, of course, in bureaucracy's most fruitful field, administration. Administration cannot escape the bureaucratic process, in whatever organization; in fact, if the organization is of any scope, its administration is, of necessity, bureaucratic. (This generalization, however, does not mean that the top executive always conforms to bureaucratic type. University presidents are usually above the organization they head; they are, of course, subject to the criticism of the client-public and the bureaucracy proper, depending upon the nature of their deviation, if they, on the one hand, are "nothing but masters of red tape" or, on the other, are "poor administrators," i.e., have too little concern for the niceties of bureaucracy.)

The outward indications of administrative bureaucracy cannot be missed. The elaboration of hierarchical structure, with each office therein appropriately defined and labeled—how many vice-presidents and deans does X University now boast?—is a phenomenon common enough but still new enough to be the butt of symptomatic academic jokes. Nor does the hierarchy stop at the echelons of assistant dean or assistant registrar, but, in seeming imitation of its governmental and business counterparts, spreads its bureaucratic being over clerks and stenographers. This organizational necessity is understandable, and, perhaps, few have serious objections to it.

However, some observers and participants, especially among faculty, grow quite concerned about another ever-present feature of bureaucracy, namely, the fact that within it there develop distinctive and commonly recognized career lines. Nor would this cause any great alarm, except that an administrative career line is beginning to emerge which leads, now and then, to the top-executive post itself. The concern of faculty members in this event is not based primarily on the assumption that the president is administratively or even intellectually unqualified but rather that he is administratively, i.e., bureaucratically, too well qualified. Most professors would, it seems, prefer in the top position of their institution an academic man like themselves, who, at least, understands from experi-

[7] These points are brought out in Merton's *Social Theory and Social Structure*, chaps. v and vi; see also C. H. Page, "Bureaucracy's Other Face," *Social Forces*, XXV (October, 1946), pp. 88–94.

ence the peculiarities, problems, and preoccupations of the species. And, even more alarming, we now witness former generals, admirals, governors, and corporation heads marching into the office of university president; this is further evidence of bureaucratization, with its ubiquitous standardization. We see, in other words, a case of the interchangeability of patterned parts, even at the top level.

Any discussion of administration must, perhaps, mention committees. Committees are not, in and by themselves, signs of bureaucratization. In fact, one professed function of the committee is to remove certain considerations from the automatic processes of bureaucratic procedure and to place them within an agency designed to stimulate discussion, informal conflict, and co-operation. Without denying that this manifest function of the committee indeed takes place (and sometimes *ad nauseam*), it must be noted that committees themselves, especially as they become "standing" agencies in the collegiate blueprint of organization, take on traits of the bureaucratic system, e.g., red tape, standardized procedures, and protocol. Committees, like all formalized aspects of the organization of higher learning, tend to become microscopic reflections of the macroscopic structure.

The curriculum is also affected. Not only do faculties and administrations set about the task of clarifying and stating explicitly the goals of the curriculum (as well as the entire educational process), but, more and more, the specific methods of attaining the goals are spelled out in some detail. Over-all master-plans, "integrated" courses, "synoptic" devices, programs for extra-curricular activities (which, too, must be geared to the institutional goals)—all these and more flood the collegiate scene. These, of course, as we have witnessed them in recent years, are not simply—not even primarily—brought about by bureaucratization. Yet the conclusion cannot be avoided that, in so far as these various plans rationally order educational enterprise and encourage standardization of "educational fare," they represent a functional adaptation to the organizational demands of the large-scale institution.

Standardization and interchangeability move clearly to front stage when we observe still another type of evidence, the textbook field. Here the case is so obvious that little comment is required, though the temptation is great to explore in detail this fascinating area. Every college teacher is familiar with the descent of the bookmen, with their flattering pleas to submit a new course to manuscript. Why? Manifestly to gain profit for the publisher, to put money in the author's pocket, to enhance his professional prestige, to diffuse wisdom throughout the world. But also—and here is a small illustration of the significance of latent, as distinct from manifest, functions—to encourage the erection of similar courses wherever curriculums permit and, more importantly, in the long run to substitute the foolproof textbook for the frequently unpredictable and sometimes foolish, instructor. The logical extension of this trend of substituting book for teacher, it has been observed, calls for a central headquarters of textbook production—"materials centers," perhaps—manned by trained specialists whose full time would be devoted to the "creation" of texts. However, the academic man dies hard.

Some academic men, nonetheless, accommodate themselves quite skilfully to the trend of "bureaucratizing" the books. This is especially evident among those whose elaborate card-index files, carefully cross-referenced, spread-eagle the entire coverage of their fields of special interest. The accomplishments of these academicians, who have, in a sense, "bureaucratized" their own fields of knowledge and their own professional behavior patterns, are, at times, startling. Not only can such a virtuoso go to his files and put together in brief time a new course on almost any subject in his field, but he can, if his cross-reference system is sufficiently developed,

construct an entire volume with amazing rapidity. With his stacks of cards in "order," he need only join together the entries with a few transitional sentences. If he is equipped with two stenographers (few, of course, have one), the entire task of turning out a tome on, say, the history of Western civilization could be reduced to a few weeks.

We witness bureaucracy's thrust, then, in administration, in the curriculum, and in the rationalization of book production. We witness it also in the standardization of teaching personnel. While it is by no means true, Hollywood notwithstanding, that one professor is much like another, it must nevertheless be admitted that we are approaching the stage wherein teachers, all properly tagged and docketed, are recognized and employed primarily on the basis of the labels they carry and only secondarily according to their individual qualifications. Generally, the Ph.D. is thought of as the college instructor's "union card," while within the academic specializations—within the "crafts," to carry on the figure—there are developing apace specialized and widely recognized symbols of presumed instructional capability. In my own field, for example, we are likely to say, and increasingly so, that "we know what we are getting" when we obtain a Columbia or a Chicago or a Harvard Ph.D. And, in a measure, we are quite right, provided that we are familiar with the peculiarities of those imposing training grounds of the graduate student. This is not to claim that the graduate schools stamp altogether indelibly their products but rather to point up the growing reliance we place, and quite necessarily, on the standardized "trade-marks" themselves. Nor is there here implied any condemnation of this procedure. If we were to judge it on the ground of the professional competence of teaching personnel, we would very likely conclude that "processing" in the great university centers is desirable.

BUREAUCRACY, TEACHING, AND TEACHERS

For many who devote most of their working time to undergraduate instruction, especially in colleges of liberal arts, the most striking—indeed, the most alarming—effect of bureaucratization is its impact upon the teaching process. The professional upbringing of most teachers has incorporated the view of the classroom as a center of give-and-take, of intellectual exploration—of intellectual discipline, to be sure, but an informal headquarters wherein spontaneity surrounds the quest for knowledge and wherein the discipline "emerges" from familiarity with knowledge itself. Some, with this image in mind, have defended Mark Hopkins' conception of the ideal classroom, the dyad, the smallest of all primary groups; while others have agreed that practicable considerations require some measure of formality. But almost all, at least in principle, have supported the contention that the student is an individual, with unique needs that should be recognized and unique capacities that should be developed, if at all possible. These convictions have become a part of the professional ethos; and those who have deviated too widely from the ethical norms frequently have prompted their colleagues' disrespect, if not their wrath.

So it is not surprising that bureaucracy's growth has caused alarm; for bureaucracy, by its very nature, ushers into the arena of instruction modes of procedure, routines, and attitudes antithetical to the (now) traditional ethos. More and more the possibility of spontaneity at the teaching level is reduced. More and more the student body is changed from a group of to-be-nourished individuals, each marked by a precious individuality, to a client-public of inexpert and provoking "cases." (One source of provocation is, perhaps, the availability of the student or "client" as a target for aggression induced by the discrepancy between professional norms and inevitable bureaucratic practices.) More and

more the teacher's routines take on the characteristic bureaucratic goal of emptying the "out-baskets" daily and completely. The "efficient" instructor is coming to be the one whose examinations can be corrected by anyone with an answer sheet or by an I.B.M. machine and are therefore "foolproof"; whose grades are always in on time; whose very presence, in fact, is not necessary to the teaching process, for he is the instructor for whom a substitute can easily be found when his business takes him elsewhere. Eventually he may be replaced, we might conjecture on the basis of recent demonstrations, by the bureaucratically ideal instructor, the teaching-machine.

This is the situation aptly symbolized by the expression "educational factory." The image provoked by this usage is, perhaps, not too misleading: freshman raw material; the "core-curriculum" furnishing the basic materials; specialization programs or "majors" determining the model —sedan, coupé, even the "convertible"; "electives" supplying those additional accessories which are prized so highly. And, smoothly moving without interruption, the assembly line: administrators and instructors following their routines faithfully, turning out the finished product, on schedule.

No social system, however, is a machine or merely a mechanical apparatus. Nor is a social organization only that which meets the eye at first glance—a point of some significance in the immediate context. For the bureaucratic structure, with its hierarchized offices and statuses, its formality and protocol, its red-tape ritualism and reduction of spontaneity, always has a counterside in which the official and formal structure of the organization is rejected by the bureaucrats themselves. In even the most rigid and highly developed bureaucracies of military life there appears an informal system, "bureaucracy's other face," that serves to reintroduce spontaneity, face-to-face clique behavior, personal competition and mutual aid, group recognition on the basis of deed or "personality" rather than formal role or office. The informal structure (and it, too, is a structure with norms, prescriptions, sanctions, and rewards) is an area within which "natural leaders" thrive and "rejected types" are scorned (whatever their formal status), within which gossip and its powerful sanctions fully bloom, within which "grapevines," and "stabbings-in-the-back" and "apple-polishers" flourish. Above all, the informal structure facilitates communication outside the formal channels; it permits circumvention of official procedures and even, at times, official top-level decisions; and it guarantees for bureaucracy's inhabitants the functionally essential realm wherein their frustrations, their "gripes," and their unofficial loves and loyalties and hatreds can be aired and expressed.[8]

There is no need to document the existence or the functions of the informal structure of academic life; illustrations immediately occur to one and are legion. Nor is there need to underscore the functional necessity of "bureaucracy's other face": all teachers, in one way or another, make heavy use of it; and sometimes, perhaps more often than they would like, their professional and academic fate rests squarely on decisions made in bureaucracy's "backroom."

Nevertheless, the formal side of educational bureaucracy, as this paper has attempted to demonstrate, gains ground in higher education. And it reaches ever further into the whole collegiate enterprise. Indeed, examples mount of the formal structure, say the office of the dean of men or the standing committee on extra-curricular activities, striving to bring within its own formal organization spontaneous and informal—and therefore suspect in bureaucracy's eyes—activities of the student body. But students are not altogether submissive. More markedly than their teachers and administrative

[8] For a discussion of the inevitability of informal developments in formal organizations see R. M. MacIver and C. H. Page, *Society: An Introductory Analysis* (New York, 1949), chap. x.

guardians, perhaps, they exercise their prerogative as flexible social beings, in their never fully controlled informal affairs, by resisting the expanding orbit of bureaucracy's demands.

Whatever the effects on students, certain consequences of bureaucratization for teachers and administrators are becoming evident. These consequences include more or less typical modes of adaptation characteristic of any bureaucratic system. While it is by no means true that the behavior patterns of academic men are merely responses to their occupational environment, inspection of the collegiate realm suggests that the personalities of its inhabitants reflect, in some measure, the structural changes of the realm itself.[9] Before presenting the specific types of adaptation, it must be stressed that the discussion no doubt omits some important modes of adjustment to the academic scene; that these "ideal-type" categories never square precisely with the facts of life; and that academic men, in their actual behavior, may tend to conform to one or more (or none) of the four following types.

The first type is the ritualist, the most frequently cited example of bureaucratic man. He is the occupant of a bureaucratic office, high or low in the hierarchy, whose official duties have become deeply ingrained habituations and whose attitudes toward the protocol of office are those of the "routineer." He has converted means into ends and has shifted matters of secular and instrumental concern to the realm of sacred values. He is the "master of red tape" beyond all others, the "bureaucratic virtuoso," in Weber's phrase.[10]

The ritualist, we might assume, is to be found primarily among the occupants of administrative posts, and, of course, he does reside there. But a casual inspection of ourselves, the instructors, will reveal him here also. And more. For as bureaucracy spreads out into student life, it produces—or at least it brings into view—the student ritualists, some of whom become "big wheels" of formal campus activities (though not all "big wheels" are ritualists). In passing, it may be suggested, moreover, that, because of specific social and cultural conditions that cannot be treated here, more women than men—in administration, instructional staff, and student body—tend to conform to the routineer type. But this should not be taken as an invidious distinction. Men and women alike, in so far as their behavior and attitudes approach the ritualistic pattern, illustrate an understandable and inevitable form of social adaptation to the realities of bureaucratic structure.

Adaptation, in the case of the second type, the academic neurotic, is only partial and uneasy. The academic neurotic,[11] generally, is confused by the apparent contradictions between professed norms and actual practice, frustrated by the "imposition" of bureaucracy's ways on his own being, and seemingly has little realistic understanding of the functional features of the system in which he operates. He is likely to shuttle between the formal and the informal structures, failing to recognize the vital functions served by both and unable to use effectively either aspect of the system for forwarding his own interests or for buttressing his own psychic comfort. He is, as we say, "all mixed up."

But the neurotic's confusion is rarely apparent to himself. On the contrary, he is often convinced, and voices his convictions frequently and in no uncertain terms, that he "knows what is going on"—

[9] See Merton, "Bureaucratic Structure and Personality," for a highly suggestive discussion of the impact of bureaucracy on behavior.

[10] Ritualism as a mode of adaptation to contemporary social structure is clearly brought out in R. K. Merton's "Social Structure and Anomie," *Social Theory and Social Structure*, chap. iv, pp. 133 ff. Professor Merton might well object to my use of his analysis in this narrower context of academic bureaucracy.

[11] The use of "neurotic" here is a clear case of the essayist's license. Clinicians may forgive me, as they so often must in this day of general misuse of psychological (and sociological) concepts.

in the president's office, in such-and-such committee, in this clique, in that department. And much of what "is going on," he may feel, is aimed at his own destruction. When this feeling is dominant, we see the clear case of the academic paranoid, the self-centered individual who detects in the life around him little beyond the diabolical machinations of his colleagues, all designed to undermine his own position. Extreme neuroticism of this type, in the individual instance, is not, of course, merely the product of bureaucracy. It may be the case, however, that the apparent increasing incidence of academic paranoia is related to the growing impersonality of academic life and the consequent social isolation of the individual (and, perhaps also, to the structurally induced increasing number of ritualists).

These features of the college environment usually do not disturb the third type, the academic robber baron.[12] The robber baron, like the ritualist, is well adapted to his bureaucratic surroundings. But his adaptation takes a completely different form; for, rather than glorifying the routines of collegiate life, rather than making ends of means, he will, when it serves his own ends best, ignore bureaucratic propriety altogether. The ability to by-pass prescribed methods, to avoid consultations or procedures called for by the institution's formal code, to cut red tape, demands enormous skills, the courage of one's convictions, and an intense desire to further one's own ends. The robber baron manifests precisely these qualities, in much the same way that his prototype in another realm—say, a Carnegie or a Rockefeller—reveals these traits. If the academic robber baron is to escape disgrace and is to remain within the collegiate enterprise, he must possess a highly realistic knowledge of the academic world, must recognize the functionally strategic relationships in and between the formal and informal structures, and must display manipulative ability.

Robber barons need not be the villains of history; sometimes they are heroes. And this is the case of the academic robber baron as well. If their ends correspond with, or are congenial to, the professed goals of the institution itself, the robber baron may, in fact, become a collegiate saint. Just as we forgive and "canonize" our Carnegies and Russell Sages, once they have made good on the grand scale (i.e., have conformed to and confirmed the culturally approved value of material success) and once they have endowed posterity with socially useful edifices, so do we exalt our academic robber barons when they have conformed to and confirmed the highest values of education.

In the most extreme form of the fourth type, the academic rebel, the traditional values, the ends, of education are rejected, together with the entire apparatus of methods and of means.[13] This educational revolutionist is not a nihilist or a pariah, however; for, although he rejects both the goals and the instruments of the ongoing system, at the same time he defines new ends and new means for their attainment. He may retain his position within the system, but, in this case, his subversive doctrines, however subtly expressed, lose their revolutionary force, for ultimately they are "toned down" and molded to fit the bureaucratic pattern. The rebel may, on the other hand, carry his doctrines into new educational ventures: he may build "experimental" schools, wherein, eventually, the forces of bureaucracy show themselves once more. In either case, it is worth observing, the original revolutionary views are necessarily changed to meet the structural demands of the organizational status quo.

The academic rebel, if he is to survive as a rebel, must, like the robber baron, comprehend the realities of his organiza-

[12] Merton uses the "robber baron" as an illustration of the "innovation" mode of adaptation to modern social structure. The use here is somewhat similar, but again in a narrower context.

[13] Merton names "rebellion" as a type of adaptation to certain structural conditions. The context here is more restricted.

tion. More, he must compromise with them, in some measure. This is why most representatives of this type are academic reformers rather than revolutionists, who generally accept at least some of the professed ends of higher education and are satisfied to seek changes in the means. Most academic men, no doubt, at one time or another fall into this category. And most of them would agree, perhaps, that the academic reformer, if not the rebel, is a functionally essential and desirable element in the world of higher learning.

Typologies of this sort are dangerous devices in an essay of this kind, for the reader often miscontrues their chief purpose, i.e., to simplify the task of descriptive analysis. And even when this task is facilitated, the typology itself may, for certain problems, conceal more than it reveals. In the present instance, for example, it is very likely true that the most productive recruiting ground for the academic neurotic is among the "well-adapted" academic ritualists. If this be the case, it raises the whole question of ritualism as an effective mechanism of adaptation. Or, again, it is perhaps evident that the academic robber baron who becomes "canonized" into the academic saint is, in reality, or at least at one time was, the academic rebel. And if this be the case, it once more raises the problem of the nature of effective adaptation and, further, the vital question of the interrelationships between these various ideal types. These are important queries, and there are many others, of course, which a full-bodied study of the bureaucratization of higher learning would be forced to face.

ILLUSTRATIONS IN TEXTBOOKS

Sterling Dow

THE contents of the present article may be indicated briefly. Illustrations in textbooks are generally poor and are often so wretched as to detract from the interest and dignity of the subject. For years there has been only sporadic improvement. The gap between what is actually published and what could be published has widened enormously because, while illustrations have remained, for the most part, the textbook-maker's disagreeable last-minute chore, the art of photography has been revolutionized, students have come to expect numerous and effective pictures, and scholarship has progressed by overthrowing barriers so that visual materials can be handled as they should. An effort is made here to formulate the principles that ought to be applied. The illustrations and legends for an introductory language textbook[1] which seek to put these principles into practice are reproduced following page 112. Finally, there are given the results of a questionnaire answered by students who used the book.

The scope and limitations of the present article are as follows. It excludes format apart from illustrations, although that is a field needing study. Neither is there space to deal with visual material apart from textbooks, although that is another inviting field for exploration. Visual aids are a sphere which no teacher will wish to overlook; textbook illustrations can now be supplemented in the classroom as never before.[2] Nevertheless,

[1] The book is *A New Introduction to Greek*, by Alston H. Chase and Henry Phillips, Jr. (Cambridge: Harvard University Press, 1949). There is some relation between the illustrations and the character of the book. The leading feature of the book is that it enables students to read "real" Greek, i.e., Greek quoted from classical authors, almost from the beginning. The book was issued first in mimeographed sheets, then lithoprinted, by the authors, without illustrations. When, in the summer of 1949, the book was to be printed for the first time, it occurred to the present writer that the opportunity to add illustrations was too good to be missed. The plates which are reproduced with this article were the result. They were printed for the *Journal* by the Harvard University Press.

The late Carl Newell Jackson, of Harvard University, after a lifetime of teaching Greek, had developed the principles of the book, and the authors were among his students. Before he died, Jackson had conceived much more radical innovations toward the same end. These still await testing. There is no space here to discuss the teaching of Greek, but in fairness it should be said that several books exist which attempt to teach the language by an instant plunge into Homer, for instance, or Plato, in the hope that the students can simultaneously learn Greek and read the author. There is perhaps a classical golden mean in this matter, and I think it lies near the *New Introduction;* but we need careful assessments of all the various experiments which now enliven the teaching of Greek.

The illustrations are due, first of all, to the encouragement of Mrs. J. J. Whitehead, Jr., of New York City; and to a grant to the Archaeological Institute of America made by the Bollingen Foundation, whose director, John D. Barrett, welcomed this somewhat unusual application and assisted also with the present article. The Harvard University Press co-operated generously. In addition to help from Harvard classes, my two children have commented freely and usefully on the pictures in their textbooks.

[2] It was my good fortune to initiate an exhibition of visual aids in classial and related fields and subsequently to arrange for the publication of an extensive catalogue (Dorothy Burr Thompson, *Catalogue of Visual Aids for the Civilization, History, Art, Archaeology, and Literature of Egypt, the Bible Lands, Mesopotamia, Greece,*

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the textbook remains the proper vehicle for much primary material.

The subject, then, is illustrations in textbooks, and on this all teachers must have some ideas. Experiences and thoughts will differ. In an algebra, for instance, pictures (i.e., photographs or freehand drawings) might well be considered, rightly or wrongly, to be out of place. Into a geometry, where other illustrations might not be wanted, some enterprising person will some day put plates which will show the text of Euclid first in early papyri, looking very much as when Euclid actually wrote it; then in medieval manuscripts; and, finally, in early and later modern books. With proper legends, broad in conception but accurate in detail, such illustrations might add the human touch with dignity and the feeling of a heritage which scores of generations have considered precious. Some textbooks in chemistry have succeeded in doing just this.

At the opposite extreme from mathematics, books in such subjects as geography can hardly have too many pictures. In what follows I have tried to keep in mind the range of studies from algebra to geography, and not to exclude textbooks of any level. Inevitably, however, my examples are drawn from the high-school and college level and from classical studies. If I am right in believing in a certain reasonable, though too-little-sought-after, degree of unity in classical and later humane studies, then this limitation is not too severe: historical illustrations will help language books, archaeology will help both; textbooks in modern history need portraits; numismatics could serve well for any period; a healthy antiquarianism assists literature; and so on.

Rome, and Pre-Colonial America; published for the Archaeological Institute of America by the American Classical League, Miami, Ohio (1949; 82 pp.; $0.50). This will provide a basis for future work.

FAULTY ILLUSTRATING

One way to become aware of what good illustrating means is to examine current books for examples of what ought to be avoided. Certain familiar types recur often.

The tin soldier.—Seen in many books. One or several, standing or running. Usually simple outline drawings, at worst imaginary, at best crudely copied from Greek vases. Often naked; if so, emasculated; small; anything but effective. Actually, the heavy-armed Greek soldiers (the hoplites) were formidable; when the Macedonian phalanx advanced on favorable terrain, nothing human or equine could withstand it; the enemy were simply tossed aside on the spear points.[3] Again, Caesar's legionaries were not the little toy soldiers seen in some Latin textbooks. All this is the more inexcusable now that the Metropolitan Museum has a heroic-sized colored statue of a hoplite, almost perfectly preserved and formidable enough to communicate a little real terror.[4]

The dead landscape.—"View of the Jura Mountains" (dark hills), "Lake Geneva" (islet with trees and modern building), "Scene of Battle" (mud and fog; therefore perhaps unintentionally realistic), "On the Venetan Coast" (a boat on a beach; murky)—these examples are

[3] Never once in all the centuries of Greek warfare did cavalry successfully charge an unbroken line of spear-armed hoplites (W. W. Tarn, *Hellenistic Military and Naval Developments,* p. 53). This had political consequences. The horse-riding aristocracy lost its political power, and democracies soon came into being, when citizens who could afford armor and weapons learned to drill, to stand shoulder to shoulder, and to charge as one man. A picture of a hoplite is not far from being a picture of a democratic citizen.

[4] G. M. A. Richter, *Etruscan Terracotta Warriors* ("Metropolitan Museum of Art Papers," No. 6 [New York, 1937]). The head, front view, appears on the cover of the first issue of the magazine *Archaeology* (New York, 1948). The Roman legionary is not so well represented by surviving remains, but infinitely better illustrations could be provided than at present.

from a book, otherwise good, used today in a superior school. No living creature is shown. No foreground gives perspective. Most of the original photographs were themselves old, tiresome, and practically valueless. The method of reproduction removes any sparkle and life which the photograph may have had, as well as most of the detail. The drabness becomes a visual counterpart of the text, hinting that a book with pictures so dull must have contents equally drab. The young do not like mere landscapes.[5]

The hackneyed masterpiece.—The author of a textbook, turning with boredom to his last task—illustrations—naturally thinks of what is well known and easily procured. The Colosseum belongs to a Latin book and is as regular as *amo amas amat*. For Greek the Parthenon, the Praxitelean Hermes, a few others. Cold pictures, dull, irrelevant, inhuman—"classical" in the worst sense. Endlessly reproduced; never a new angle or an interesting one.

The fallacy.—Various forms. Actual examples: "The Temple at Delphi" (a view of the theater; the foundations only of the temple, which are all that is preserved, are low in the background; only an expert could identify them)—this in a reputable book. A Greek trireme with sail wrongly set, the wind pulling the ship backward while the oars propel it forward—this the one principal symbol in an advertisement for a new book. There is no need to give other examples, although the various alleged busts of Caesar deserve particularly unfavorable mention and a series of prizes should be reserved for architectual monstrosities, such as a Greek grammar (one of the best inside) with the Doric order distorted and degraded on the cover. Scholars who would shudder at the slightest violation of the principles of Greek grammar, even at a misplaced accent, never noticed this glaring violation of major principles of the grammar of Greek art.

The fabrication.—"Vercingetorix and Warriors" is a stock example. Scenes full of people, animation, and erroneous (or purely imaginary) detail. Though they are not quite sure how they know it, the young almost always recognize that these pictures are fabrications and look down on them as such. The young also, for better or for worse, like them better than most illustrations.

The colored horror.—Usually the frontispiece; rare in Greek books, common in Latin. Not always a painting by a known artist: the "Vestal Virgins," for instance, with lots of pink. More usually by a second-rate artist, always of the nineteenth century. The prize may be awarded to Alma Tadema's "Listening to Homer": a mixed group seated on white marble, ardent people yet graceful, leisurely, and certainly "cultured"; a young man reads from a scroll. The "atmosphere" is definitely upward-with-the-arts. But, with all its faults, such a colored picture is probably more attractive to most children than the finest piece of Greek sculpture that can be shown in gray.[6]

[5] It is true, though it is not a sufficient excuse, that most of the really pleasing picture-books showing the Greek and Italian countrysides are too recent to have been used. The existence of these new books, however, emphasizes the gap between what exists now in textbooks and what might exist—if any landscapes are used.

[6] Pictures like this are part and parcel of the still persistent nineteenth-century conception of the Greeks as dressed in nightgowns, lounging on marble, "talking themselves into a high culture," while great numbers of slaves waited on them hand and foot and did all the mundane work. There is no space here to *prove* that the slaves were indisputably a minority. The most recent estimates, which are also the most authoritative, give slaves as 35 per cent of the total population of Athens in 431 B.C., then 37 per cent in 425 B.C., and 41 per cent in 323 B.C. (A. W. Gomme in *Oxford Classical Dictionary, s.v.* "Population"). It was only a few years ago that a questionnaire given to college students in Pennsylvania and backed by a Carnegie grant contained a true-or-false question of the form "Ancient Greek civilization was based on slavery." The answer expected was "True." Any student who happened to have been taught by a scholar and who answered correctly "False" was marked wrong.

The discouraging chart.—Hasty, complicated, dull, the usual chart acts as a deterrent to interest. Battles, for instance, may or may not interest children; it depends largely on the teacher. Certainly, no chart helps. The Battle of Cunaxa, for example, is always shown in textbooks with flaws which any student who read the text carefully could correct. Yet I have never known a student to do so: the chart provokes no interest.[7] Dulness and error, as so often in scholarly matters, go hand in hand.

FORMER PRINCIPLES

The illustrations in some unrepresentative classical books are by no means representative of illustrations in American textbooks as a whole. I have used them as examples because they show most clearly what to avoid. In fairness, however, and in order to conserve whatever good there may be in previous practice, a word ought to be said on the other side.

It may be forgiven, perhaps, if no discussion is provided here of the proposition: Poor illustrations are better than none. This is the assumption upon which textbook illustrators have often acted in the past and upon which doubtless they will continue to act. Facts will presently be stated which might tend to show that they are right, but we need not descend to consider poor illustrations at all.

The only argument in defense of the present practice which ought to be made here is the argument for the "hackneyed masterpiece." The Praxitelean Hermes, it might be argued, is tiresome and hackneyed only to us old folks; youngsters have never seen it before. There are two plausible reasons, moreover, why the best things should be made known to beginners. These two reasons apply to literature and to much else besides mere illustrations, and they have a corresponding wide interest and importance.

The first and more mercenary reason is that the young student will be induced thereby to continue to study the subject. This reason depends for its validity on the second argument, which is that enticing vistas of future glories should be presented very early, thus giving purpose, power, and direction to tedious first-year work itself. The argument would mean that some of the best Greek sculpture, for instance, should face the third declension in the beginners' books; and the death of Socrates should be read —of course, much simplified—after about three months, as soon as the student can read continuous Greek at all. Similarly, beginners on the piano should practice not scales but themes from Bach. Such is the argument, and such are the kinds of illustrations it leads to.

Anyone who would deny utterly the principles behind this reasoning must be a person who never, while young, felt the impact of genius. Good things should be spread before the young as soon as they can comprehend them—in some instances, sooner. If incidentally the effect is moral, for instance, the giving of purpose to studies, so much the better. All studies, or nearly all, should have some glimmer of a purpose from the very beginning, though not necessarily a full and developed, consciously articulated purpose. Disagreement, therefore, is over details,

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It is to be regretted that the old nineteenth-century view, which no scholar could defend, has slipped into the Harvard Report, *General Education in a Free Society* (p. 52), where it is part of a historical argument about liberal education and leisure classes. The fact is, however, that not only were the slaves a minority in Athens (contrast the Old South, in parts of which they outnumbered the whites twenty to one), but also that the Athenian citizens did not have unlimited leisure: the extensive Periclean building program, as more fully revealed in recent excavations, is one more proof that most of them kept busy most of the time. We know, moreover, that on the Erechtheum citizens, metics, and slaves worked together, all doing skilled manual labor without distinction in wages or in any other way.

[7] Needless to say, its alleged facts are altogether out of step with W. W. Tarn's authoritative version in the *Cambridge Ancient History*, VI (1927, 1933), 7–9.

but in such matters details are all but all-important.

Certainly, the materials chosen for practice and for illustration ought to suit the age of the student. Possibly we could modify this and say that the materials should be, wholly or partly, just a little in advance of the student. Bach is perhaps suited to any age, but conceivably some schoolboy of eleven, whose real desire was to be a G-man but who was forced to play Bach themes thirty minutes a day, might come to hate Bach. The goal is vigorous interest in worthy things. A boy who during the years from ten to eighteen loves *Treasure Island, Huckleberry Finn, Ivanhoe,* and *War and Peace* successively is safe, and it would be an error to foist *Hamlet* or *Faust* upon him, in simplified form or otherwise, until he is ready. Similarly, it is a pity to foist the death of Socrates upon young students who have little idea who he was, what he attempted to do, why the things he attempted were important, and why the Athenians tried and executed him. Even if very young students could be forced to know all these things, they might not be ready to understand and appreciate the meanings.

Illustrations in textbooks, similarly, should inspire, should whet appetites, and should induce students to go forward with vigorous and intelligent interest. But the illustrations themselves should not necessarily be nothing but previews of the Hermes and the Parthenon. If it seems likely that the Hermes and the Parthenon do not naturally appeal to people under twenty, some other subjects should be sought.

Another variant of the argument for masterpieces in textbooks could be that, along with elements of history or of declensions, students should gain an elementary knowledge of what the Parthenon, for instance, looks like. The object according to this argument is not inspiration for future work or added enjoyment in present work but preparation for understanding future work.

There is no need to consider this proposal at length. Obviously, like the other arguments, it has a partial validity. But equally obviously the end in view can be gained by illustrations of details or of unhackneyed masterpieces as a whole, provided that the illustration does justice to them. We owe it to our students to inspire them, but we also owe it to them to present the Parthenon with something of that freshness which, after five hundred years, it still had for Plutarch.

BACKGROUND FOR NEW PRINCIPLES

Most textbooks are illustrated on the basis of ideas (if we may speak of ideas and not of mere notions) current some time ago, when mass-produced photographs were still a novelty and were comparatively rare and were not expected to be very clear or interesting. Of the companion volumes, J. B. Bury's *History of Greece* and M. Cary's *History of Rome,* the first was produced with dismal photographs in 1900, the second in 1935 with photographs only slightly better (but the diagrams in both books are usually good). Although both volumes are easily the best one-volume histories in their fields, the pictures would be inexcusable today. Most recent textbooks are better, some are much better, but very few have escaped the assumptions made decades ago.

The level of expectation.—Meantime, new generations have grown up, and they have grown up in a world where mass-produced pictures are far more numerous and, on the whole, far better. The new generation has new habits and new standards.

Today's children began early on the comics and learned to expect action in pictures; they expect some point and some meaning, however trivial. The dead landscape, which *may* have pleased their grandfathers, is useless to them.

Next the picture magazines became weekly diet, and here standards of photography and of presentation are often

very high indeed. No textbook can emulate the effects possible with an unlimited budget and a quarto or small-folio page; but present textbooks suffer terribly by the comparison.

The movies are also too obvious to mention, except that no one looking at recent textbooks would guess, if he did not know, that they were written for a generation habituated to the visual presentation of material—even to some extent in the schools themselves. Television is effecting the equivalent of bringing the movie into the home. Bad though its programs are, they have a potency (so I am assured by an advertising expert) which excels that of any other medium.

The two simple facts which emerge are that the young expect lots of pictures and that they expect pictures which, apart from all other qualities, are competent enough to do the work they were made to do.

Radical improvements in photography.—Meantime the art of photography has undergone a development which is little appreciated. The development of photography may be easily comprehended from what took place in archaeology. During the 1930's, to photograph objects, Hermann Wagner began using the smallest stop on his lens, a ten-minute exposure, and for light a beam from a storage battery lamp played back and forth over the surface by hand. The old dead-black background was brightened to a warm living gray. Heavy shadows were painted out with light. Surfaces that bore delicate indications of ancient letters and the like were raked with parallel beams, which brought into relief every slightest depression and projection; letters were actually read in photographs which could not be read at first on the marbles themselves. For statues and other large objects, prolonged study developed other methods: after eighteen tries, a statue with legs too short was made (deplorably or not) presentable—the eye of the camera was even taught to falsify—as well as to discover, to clarify, and to glamorize.

Similar progress was made with outdoor scenes containing buildings and the like. This development I do not know at first hand, but the handsome selections from Walter Hege's 1,100 shots on the Acropolis can be seen by all.[8] Again light was all-important: Hege studied what he wanted, then waited patiently until the sun was right.

Finally, there occurred a most happy conjunction of talents. Humfry Payne was studying the archaic marble statues on the Acropolis, G. M. Young was a gifted amateur photographer and scholar. Together they produced a volume to the queen's taste.[9]

Skilful, patient, scholarly men and women of other countries—Frenchmen, Greeks, Americans—carried on and elaborated this development. Greece and Greek art live in pictures with incomparably more vitality today than they did as recently as the 1920's.

Progress in captioning.—Still less widely appreciated, partly because it has hardly begun in textbooks, is the development of captions or legends. Anyone who traces the history of the magazine *Life*, for instance, will note that it never became a magazine entirely of pictures. Oddly enough, print survived; I believe print increased.

When the then greatest living Egyptologist, James Henry Breasted, sat down to write a school history, he realized that, even for the young, archaeology is the growing point of studies of the ancient world, so that numerous pictures were needed. He realized also that legends of generous length would be a powerful instrument of teaching. Accordingly, he presented a text richly supplemented with clear, interesting, informative legends. Even to students who had little

[8] W. Hege and G. Rodenwaldt, *Akropolis* (3d ed.; Berlin, 1937); also *Olympia* (New York, 1936).

[9] *The Archaic Marble Sculpture on the Acropolis* (2 vols.; London, n.d. [*ca.* 1937]).

help from any other source, a feeling of freshness and excitement was conveyed. The master-archaeologist's own enjoyment was there on every page. It was a new kind of book.[10]

Doubtless many other examples could be given. One scholarly work may be mentioned for the revelation it provides of what pictures can be made to do. M. Rostovtzeff had done it several times before, but not with the full abundance of his *Social and Economic History of the Hellenistic World*, which has 112 plates nicely located in the first two volumes, with long legends occupying the better part of each facing page.[11]

Closer relations between disciplines.—There is yet a fourth development in some fields, which may be shown easily if we again take the classical world as an instance. In recent decades archaeology has made considerable strides in its own sphere, and progress has been made, real though less, in linking archaeology with other classical studies and these studies with one another. Today no one can claim to know the Periclean age, for instance, who does not know something of the Parthenon and its refinements; its function in cults; its economic aspect and its relation to the Athenian empire and Athenian politics; its place in the Periclean building program; its sculpture as related not only to the building but also to mythology, and also again in relation to the course of Greek plastic art. The compartmental walls between specialties are falling, and textbooks can easily benefit from a new wholeness of view, in illustrations and their legends, as well (of course) as in the text proper.

Recent improvements.—Since many adverse criticisms have had to be made herein about Latin textbooks, it should be stated that in some instances an extraordinary change has taken place. Certain school textbooks in Latin have burst out with a profusion of pictures. Captions are brief but accurate. Color has been used wherever practicable. The quality of halftones and of the colored pictures varies from excellent to poor, the majority being about in the middle. In all the texts examined by me, the pictures fall into two main groups. The first is actual surviving objects (or landscapes). In this group some hackneyed masterpieces survive, but an effort has been made to ransack the archaeological remains in order to obtain vivid and pertinent matter. As a whole, the results are commendable. Along with the real pictures—indeed, mingled with them throughout—are imaginary reconstructions, more often than not in color. It would be easy for specialists to misjudge this second group, the imaginary pictures. They are undeniably vivid, sometimes fascinating. On the other hand, when poorly drawn or badly painted or faultily conceived or defectively printed, they cheapen the tone of the whole.

Classical dictionaries.—A curious result of the modern improvement in illustrations and the consequent higher standards and higher costs is seen in classical dictionaries. A century ago all were illustrated. In due course Baumeister was issued, a dictionary of *Realien*, nearly all pictured. But the great dictionary of Pauly-Wissowa-Kroll, published mostly later, has only a few diagrams and maps; and now, in the age of near-perfect illustrations, the *Oxford Classical Dictionary* (1949) is completely without illustrations of any sort. It would be wild to suggest that for PWK or for *OCD* any other plan could possibly have been followed. Yet undeniably there has been a sad loss. I have at hand, for instance, a *Museum of Antiquity, Illustrated*, by L. W. Yaggy and T. L. Haines (1882): a disgraceful book scientifically, even when it was published, but with pictures which, however unreliable, fascinate.

[10] *Ancient Times* (2d ed.; Boston, 1935). The best part is the whole pre-Greek section (pp. 1–282), especially the sections on Egypt.

[11] 3 vols.; Oxford, 1941.

NEW PRINCIPLES

To sum up what has been said thus far: visual evidence is no longer merely optional in most textbooks and ought no longer to be tawdry, or irrelevant, or unexplained.

An attempt can now be made to set down some principles which will at least serve as a basis for discussion, and ultimately perhaps for application, in areas other than the classical, the area which happens to have occasioned the present article.

In what follows, novelty is not sought or claimed. The principles suggested—only suggested, though expressed dogmatically for brevity—are arranged roughly in an ascending order, beginning with the simpler and more mechanical.

The placing of illustrations.—This is much more important than most book-designers and teachers think. The old spare-the-rod-and-spoil-the-child attitude still prevails and often amounts to plain discourtesy. The young are lazy. No mechanical obstacles should be put in their way—on the contrary. Learning is so difficult in itself that it alone will provide plenty of material for developing character. The school track team is not compelled to race in heavy boots.

Illustrations, for instance, should be set as near as possible to the page to which they refer. If Figure 10 is mentioned on page 15, it should not be set on page 20. If any such separation is necessary, the reference should read, "See Figure 10 on page 20."

A new device for saving money is to lump all the pictures together in one group or in a few batches. There is perhaps something to be said for putting them all together at the end, as in some scholarly works (or better still in a volume by themselves), but the saving of a few dollars by the lumping device is undesirable.

Pictures should stand, as it were, on their feet. They should not ordinarily be set sideways, so that it is necessary to turn the volume.

With care the two-page spread could probably be utilized, preferably at the middle of the book. This would permit effects which cannot be attained and should not be sought on one small page alone (see below). But an illustration must be selected which will not suffer unduly from the break in the middle.

The pictures individually.—The pictures should be of top quality as images: enough has been said of that. What follows is devoted to content.

Some easily comprehended scale should be included in the picture, or at least some indication of scale; if this is impossible, the legend should supply the information. The young (*and* intelligent elders) always want to know how big a thing is. The aesthetic theory which argues that mere size is irrelevant is largely misleading. Since human beings themselves have measurements, they cannot be uninterested in the sizes of objects. Yet this is not to claim that size is all-important: there can be grandeur in small compass or pettiness in a large mass.

Originals should be shown, not casts. The young, whose imaginations are untrained, like things to be "real." It is true that gems, cut in intaglio, must usually be reproduced in plaster so as to give relief for photographs. Coins also sometimes show better as casts.

For the same reason, photographs should usually be preferred to drawings. Yet drawings done under expert direction or, better, paintings may be superior to anything for some purposes. There is nothing of this sort finer than Rhys Carpenter's designs with facing text, carried out in full color by H. M. Herget, "Ancient Rome Brought to Life," *National Geographic*, XC (November, 1946), 566–633.

Broken objects should generally be avoided, no matter how famous, unless the break is quite trivial. The first thing noticed by the young is the break; only

trained eyes can subordinate it. Example: the Venus de Milo (or, puristically, the Aphrodite of Melos) would be excluded for this reason, if for no other.

Reconstructions, however, of historic buildings, scenes, or even events may perhaps be used, but only if they meet the strictest requirements of validity and interest. Thus the reconstructions of the Acropolis by G. P. Stevens in his drawings (Parthenon, *Hesperia,* Suppl. III [1940], figure on unnumbered page facing p. 1; Entrance Court, etc., *Hesperia,* frontispiece, facing title-page for Vol. V, No. 4 [1936]; Athena Promachos, etc., *Hesperia,* V [1936], 494, Fig. 44) are scientifically acceptable and have only enough persons shown to give scale and verisimilitude. One or two of his drawings *may* have more value for textbook illustrations than any but the Hege photographs of the Parthenon.

The general proposition stated above is debated among archaeologists, some of whom will not tolerate imaginative reconstructions. Personally, I should not admit such an item into a group of as few as eight or sixteen pictures, of which the others were photographs. Reconstructions can be used only when there is considerable variety in kind and size of illustration. So much has survived, from every period of the past, in usable form, that the use of reconstructions need be contemplated only rarely.

Physical sex interest is improper in a textbook; but no emasculated figures should be shown. If there is reason to regard this aspect at all, some innocent view should be selected.

The illustrations should have natural human interest, and it should be an interest natural in the age brackets of the students in question or only a little beyond them. The interest itself need not always be utterly spontaneous; it may be interest aroused by the text. Everything dull is excluded, both in the composition of a picture and in the subject matter. On the other hand, interest is not the same as excitement. If a picture is good, interest in it will grow. Excitement, on the other hand, as felt in the comics, usually does not last.

Positive, fine qualities should predominate—dignity, vividness, comeliness. Pictures which are merely good are not enough; they should be aggressively good. For a common instance, school scenes of bygone ages are considered by many to be appropriate for school books. The young apparently like them. If illustrations are very numerous and varied, school scenes might perhaps be admitted; among a few illustrations, on the contrary, they would seem trivial.

Pretentiousness should be avoided. No conscious effort to appreciate art should be called for. Grand and elaborate material should not be compressed into the small pages of textbooks. Instead, details may be used, and the rest may be left to the legends and to imagination. A prime example is the Alexander Sarcophagus (G. M. A. Richter, *Sculpture and Sculptors of the Greeks* [New Haven, 1930], p. 598, Fig. 748), which is almost perfectly preserved. Like the rest of the sculpture on it, the long side-panels were painted. Colored reproductions have been available, and better ones soon may be again. They offer vivid, important, interesting material for textbooks. The choice is between two long thin strips, each showing the whole of one side, standing on their ends, or selected details, such as the figure of Alexander. J. H. Breasted (*Ancient Times* [2d ed.], Pl. IV, opposite p. 506) rightly chose the latter.

No illustration which tends to degrade its subject should be shown. It is far better to let the imagination make its own constructions than to risk dull, obscure, trivial, or technically poor pictures.

The pictures as a group.—In varying degrees, depending on their kind and number, the pictures in a textbook may be treated as a group. This has never been done, so far as I know, in any systematic way. The reasons for doing so, as against making a miscellaneous collection thrown together in no order, are (1)

that any reader will examine and understand them more or less as a group and (2) that they can be planned to attain effects as a unit which they could not attain singly.

There are really two possibilities to consider. The first is the situation, common to most histories and geographies, in which each illustration is more or less tied to a particular part of the text. Here the essential need is that each illustration be clearly apposite, doing exactly the work it is meant to do. The vital connection is the connection between picture and text, not between picture and picture. Nevertheless it would be easy to adopt too narrow a view of illustrations, even where a prime function is that of illustrating specifically definite parts of the text. Breasted, for instance, took a broad view: his illustrations are not cramped to fit his text.

What follows, although it applies best to illustrations which are somewhat independent of the text (the second type of situation), applies also—and more directly than might at first be supposed—to books in which the links with the text are primary.

The illustrations should be nicely balanced as between variety and uniformity. A Greek history, to take an extreme example, could be illustrated exclusively by coins. With magnification of some of the photographs of the coins to full-page size, the effect might be very fine indeed, within the limitations of a slight monotony; but, despite the monotony, knowledge and skill might well produce a better-illustrated Greek history than most now in print.

The illustrations should be ordered on some intelligible basis, such as chronology, kinds, degree of complexity, or (of course) relation to the text.

If all the pictures must be printed together in a lump, then some intelligible order is the more desirable. Rhys Carpenter's pictures to illustrate "Ancient Rome," referred to above, are arranged in chronological order to cover over a thousand years of history and at the same time to illustrate various aspects of life.

The illustrations should have scope, reaching out beyond the limits of the text so as to help provide a setting for it. Ideally, some link should be provided with origins and also with modern times, with current practice, with familiar scenes and objects. All studies of the past make use, at an advanced level, of survivals—in customs, daily life, religious practices, and the like. At the textbook level much use can be made of such materials. The Greeks still live in compact towns like city-states. Italian agriculture is near to Virgil. France and especially England contain medieval survivals. But such evidence must be selected with care. Too many survivals are merely quaint or trivial. The Wool Sack is no mere cushion, but a symbol of the welfare of a people. The Bayeux Tapestry (recently published in a delightful and inexpensive edition by A. Lejard, *The Bayeux Tapestry* [Paris, 1947]) is no comic strip, but grim.

Origins, antecedents, etc., are another matter entirely; but here, too, opportunities are often wasted. The essential advantage of a picture is that it can stand apart, if there is reason to let it, from the rest of the book.

Diagrams, maps, charts.—The magazines like *Fortune* pointed the way, and the war taught essential principles to many more. The principles are clearer and more obvious than for illustrations; much could be written, but it is less needed. In the future, only economy and/or plain laziness alone will account for poor presentations. One of the most ambitious and successful recent attempts to make diagrams vivid is to be seen in R. Cowell, *Cicero and the Roman Republic* (New York, 1948), probably the best-illustrated book on Roman history at the school/college level. Black-and-white work has seldom been better, it seems to me, than that of J. F. Horrabin in Wells's *Outline of History*. Horrabin's curving lines and pleasant images match the

pleasantly written text. This was no accident; Wells said of him that "Horrabin was not only an illustrator but a collaborator."

Much could be said about maps alone. There is no general historical atlas in print; moreover, most available maps of countries as they are at present go back to a few old-time surveys. On the other hand, the war produced revolutionary features in cartography proper, not to mention photographic surveys of wide extent. When some of these become available, classrooms and textbooks will benefit considerably.

Diagrams, maps, and charts should be clear. Clarity does not imply oversimplification or any kind of falsification. The legend may explain or qualify, and care spent in giving an exact impression will show the student that the subject is considered important by someone. The scholarly carefulness evinced by the qualification may be more important educationally than the diagram itself as a whole.

Diagrams, charts, and even to some extent maps should be animated in some dignified way. The line between garish overemphasis and dignified clarity is often a thin one. The diagram should not throw itself at the reader; yet it should be forceful and easily remembered. Cities, for instance, on maps should not be so large that they fill half the country, yet they need not be mere dots. The recent works of E. Raisz and of R. E. Harrison are among the more imaginative and satisfactory.

Each map should make just one point or apply to just one situation—ordinarily not more. A large reference map may be used for a whole volume, of course, and there may be other exceptions. But the war taught many of us the value of the one-purpose map, which saves the observer all the trouble of hunting and sorting, of trying to make up a pattern in the midst of many elements. At an advanced level, the *Cambridge Ancient History* offers many examples of regional, limited-purpose maps, each complete with a finding index.

Legends.—The illustrations should be planned and worked on along with the text, chapter by chapter; and the legends should be drafted at the same time, so as to make sure that the reason for the choice of the picture is not forgotten but is made obvious in the legend (if the reason is to be stated at all). Of the two places where legends may be printed—on the plate itself, or at the bottom of a facing page—the former takes space from the picture and/or limits the length of the legend. If these two drawbacks are not serious, then the advantage of immediate propinquity should be decisive. The ideal solution, however, may in some cases be an entire facing page of legend.

The legends should generally be at least partially intelligible without the text. They should be clear, but they need not be utterly simple or altogether comprehensible on one reading. If the picture has any real value for them, students will read the legend; during the long hours spent over the book, the legend will be reread. Hence good matter can be packed into it. If it offers one or two easy puzzles, verbal or conceptual, so much the better. The content of the legends should probably not be subject to examination and perhaps need not even be discussed in class at all.

Enough length for the legends should be allowed in order to say what ought to be said. The failure to realize this is one of the worst in present textbooks; but it must be granted that few textbook-writers really know what ought to be said. This is partly because of their ignorance of the subject as a whole; yet it is also true that sometimes only an expert on art or archaeology or the like can provide trustworthy information. Such persons should be freely consulted, and, if necessary, they should be collaborators.

The legends may refer to the text but should add to it. The prime purpose of an illustration being to illustrate and not to provide bulky peripheral detail, it is

important to make references direct and real; to keep pictures and legends which do not refer to the text reasonably distinct from it; and to hold the total of legends and pictures within bounds. Breasted, for instance, has too much illustrative material, however fine; it swamps his text.

Like the illustrations, legends should themselves have natural interest, dignity, and other positive qualities. They can at the same time be made amusing and agreeable. The worst sin, after downright falsity, is triviality; the next is dulness. On the other hand, a forced tone of elevation should be avoided.

The legends should not be restricted narrowly to the subject of the illustration but should provide a setting and should build up, if possible, to some major point or large conception or consecutive story. This applies most to books in which the illustrations stand apart somewhat from the text and are tied to it only incidentally, such as pictures in an elementary language book. In a history or geography, however, the legends can provide hints that literature and art existed and can relieve the text of such burdens if necessary. In particular, the legends can end the unfortunate divorce of history from geography, by which geography textbooks, so far as I know them, lack the dimension of time altogether; so that the one sure thing about the text is that, when the student is mature, it will be outdated. The "latest" information is likely to be the most ephemeral.

Above all, the illustrations and their legends should be planned in relation not only to each other but to the book as a whole and ultimately to the student's education as a whole.

Alfred North Whitehead somewhere speaks of what it means for the young to live habitually in the presence of greatness. Until we have textbooks with integrity and inspiration, we shall have neglected a powerful moral agency. English boys, in their last year at Winchester, read Mommsen on Rome, one of the noblest accounts of any period of human history. With rare exceptions, American boys read the hack-work of tiresome little minds hemmed in by real and imaginary restrictions. But these considerations lead us beyond illustrations.

ILLUSTRATING A NEW TEXTBOOK

Preaching is notoriously easier than practice, and the illustrations with their legends here given will doubtless serve less as a model than as a target. It might be urged that the principles stated in the foregoing parts of this paper would not be invalidated completely by the failure of one illustrator, previously inexperienced and acting under severe limitations of time and material, with a budget which permitted no waste. Equally certainly, success in this one instance would also prove little.

Whatever their defects, the illustrations from *A New Introduction to Greek* reproduced here are meant to incorporate views and objects not hackneyed but not trivial; to have easy intelligibility and variety, including some actual contemporary Greek lettering (Pls. 4 and 6); and to fall into a chronological order. The legends are intended at least to hint at the successive periods of Greek history from the prehistoric to the present, with some allusion to the text (directly for Pl. 4); and to include a few Greek words, notably the terms for the topographical features of the city-state, illustrated by Athens (Pl. 3).

Pictures and legends together are meant to suggest the unity of several classical studies: topography, ceramics and vase painting, social institutions, epigraphy, history, art, and archaeology.

Merely to state so ambitious a project is to anticipate some degree of failure. At any rate the objectives, as given in the preceding paragraph, were formulated and committed to writing as the work went on, and I think this helped. With, say, sixteen plates, doubtless an effect

PLATE 1 **DELPHI FROM THE AIR**

Above all others, Olympia in Elis and Delphi on Mount Parnassus were the national shrines of Greece. The view shows Delphi, the modern village; to the right of the central ridge, the ancient precinct. The stadium is clearly visible as a horizontal light gray band next to the central ridge at the top of the precinct. Lower and to the right is a circular patch, the theater. The oracle and Apollo's great temple were slightly below the theater.

From the olive plain far below and out of sight, the road winds up to the town. Above, a zigzag trail to the summer pastures high on Parnassus has been trodden out by shepherds for centuries, back doubtless beyond the time when Apollo, the god of invading Greeks, took over the sanctuary. Until then, the deity worshipped at Delphi had been Γῆ, the old mother Earth goddess of the pre-Greek inhabitants, and Γῆ was permitted to retain a minor cult. Later, when a new and wild worship arrived, that of Dionysus, Apollo's priests applied their motto μηδὲν ἄγαν ("nothing overmuch," i.e., no excess), and Dionysus became civilized. In fact, it was Delphi which taught all Greece the sane, wise, essentially humane doctrine of moderation, the Golden Mean. The oracle deserved its prestige.

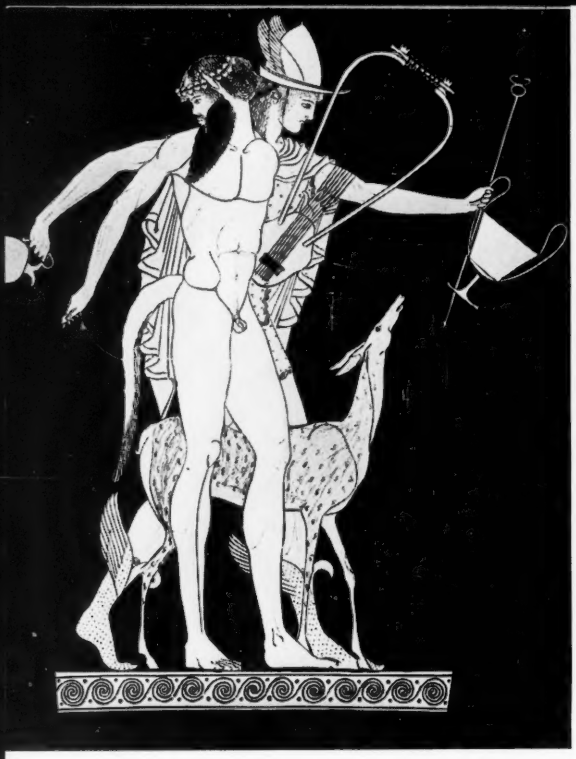


PLATE 2 **A SILEN, HERMES, AND A FAWN**

The civilizing priests of Delphi were not the only teachers of the Greeks. From the Phoenicians the Greeks learned how to write; how to copy the simplified picture of an ox, "aleph" in Phoenician, "alpha" to Greek ears; then "beth," a house — and so on throughout the *alphabet*. This happened probably in the eighth century, when there were still kings throughout Greece.

Not long after, the kings in nearly all the city-states gave way to aristocracies. Homeric poetry, originally oral, was probably written down while the aristocrats were dominant. It was they who cultivated verse sung to the lyre, and all else which has to do with that fusion of literature and music which the Greeks called *μουσική*.

The lidded mixing bowl above may serve as a symbol of Athens in the fifth century, when democracy was beginning to supplant aristocracy. With its elaborate contrast of the hesitant, snub-nosed, horn-eared, woodsy old silen and the dashing, aristocratic young god, the picture is almost too artful an antithesis. A more delicate fawn could not live. The aristocrats, in their graceful cultivation of mind, hand, eye, and voice, demonstrated to the rest of Greece (and to us) the right balance by which discipline was rigorous without being harsh; and expression was free and strong without loss of precision and control.

PLATE 3 ATHENS, LOOKING EAST

In many city-states, the aristocracies were overthrown by aristocratic tyrants, who proved to be stepping-stones to a broadening of aristocratic privileges and culture. Thus democracy was born in the fifth century, nowhere more notably than in Athens. Each city-state (πόλις) was in reality a small territorial state, with a hill fortified and supplied for sieges; the citadel thus formed was called the ἀκρόπολις. Here in early days lived the king, who conducted the state worship from the temple or temples on the ἀκρόπολις. Round the foot of the hill clustered the houses of the citizens, the πολῖται; the compact body of houses was called the ἄστυ. When enemies attacked, the πολῖται abandoned their houses in the ἄστυ and hurried up into the ἀκρόπολις. In time of peace they commuted daily to their fields in the surrounding countryside, called the χώρα. In the picture above, the sharp-topped conical hill on the left, Lykabettos, was useless as a citadel, but from early times the hill on the right made a suitable Acropolis. Here the Periclean democracy built the Parthenon (447–432 B.C.), which still dominates in any view of Athens. Below, at the extreme left, stands the almost completely preserved temple of Hephaestus. Between this temple and the Acropolis much of the area was devoted to the public gathering-place (ἀγορά), where an area was kept open for weekly markets, as still in the area shown above the Greek Orthodox church.

Since this picture was taken, the American School of Classical Studies has cleared and excavated the ancient Agora. The modern visitor can tread where Socrates taught, where Saint Paul preached, where in later Roman times the antiquarian Pausanias noted down building after building which has again come to light. Thus the creative energy of Athens, long known from its literature and thought, is now clear in its architecture, where the heritage of free but disciplined expression from the aristocracy was blended with the new democratic energy.

PLATE 4 OSTRACISM

The very word "politics" shows its origin. Politics in a πόλις needed no inspiration: man is by nature, said Aristotle, a political animal.

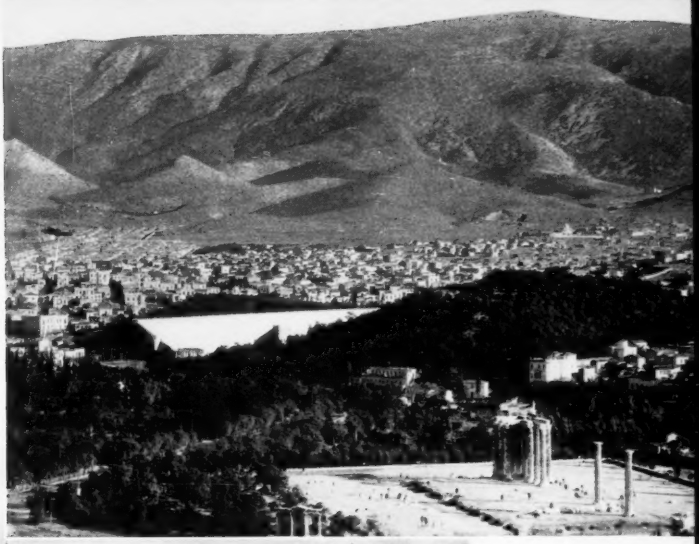
One problem of democracy was the danger that a strong man might again succeed in mastering the state as a tyrant. To avert this danger by legal means, the Athenians invented the institution of ostracism, which was simply a popular balloting on pieces of broken clay pottery (*ὄστρακα*) — the waste paper of ancient Greece. The man named on a plurality of the *ὄστρακα* was required to leave the country for ten years. No law required a voter to inscribe his own ballot; it was unsigned. Ostracism was thus open to manipulation, and finally was abandoned, though long after the righteous Aristeides was ostracized (see the *ὄστρακον* above, lower right; and the Greek story, page 72 of the text).

PLATE 5 **ART IN THE CITY-STATE: A BRONZE FOUNDRY**

The outside of the fifth-century Athenian drinking cup above shows scenes in the casting of bronze statues: the kiln, with a boy behind working the bellows; on the wall, models and tools. In the center below, two workmen smooth down a bronze warrior. The workmen are made small to show that the statue is twice life-size. The bronze for statues was not turned green and dull, but was left polished and gleaming; and marble statues were not left cold and white, but were painted in bright colors.

PLATE 6 **FOUR PORTRAITS**

Ancient craftsmen not only forged colossal statues, they also carved minute gems, which were worn on rings as seal stones. The photographs are from plaster impressions of the gems; hence the reverse direction of the signature on the first. The upper left portrait is fifth-century, perhaps reflecting that ability both to think and to act which Pericles praised in his countrymen. Beside him is a Greek field marshal of the Hellenistic period, when Greeks conquered the East and formed powerful warring monarchies. The lower left shows another Hellenistic personage. The lower right shows a vigorous face, possibly one of the Romans who despoiled Greece and the East alike before bringing that universal peace which proved to be sterile in the areas where once the πόλεις had lived their intense creative existence.



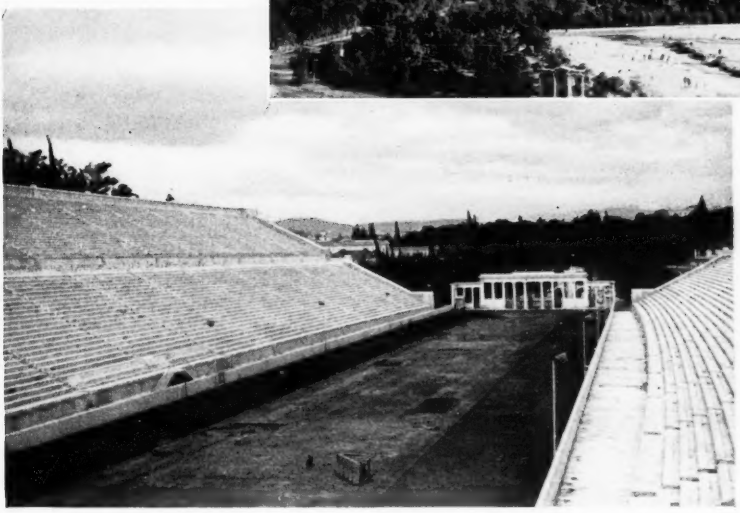


PLATE 7 **ATHENS UNDER ROMAN RULE**

Looking east from the Acropolis toward Mount Hymettus, one sees the view in the uppermost cut above (out of sight in Plate 3). In the foreground are the remaining columns of the temple of Olympian Zeus. Begun by the tyrant Pisistratus in the sixth century B.C., and carried forward with help from an Eastern king in the Hellenistic period, it was completed by the Roman Emperor Hadrian nearly 800 years after Pisistratus.

Beyond lies the Panathenaic stadium, which was finished in Pentelic marble in the second century after Christ. In the Middle Ages most of the marble was burned for lime, but when in 1896 the Olympic Games were first revived, the Greek architects studied the remains and restored the whole, preserving the Greek refinement of design by which the sides were curved to give a better view for spectators sitting near the ends.

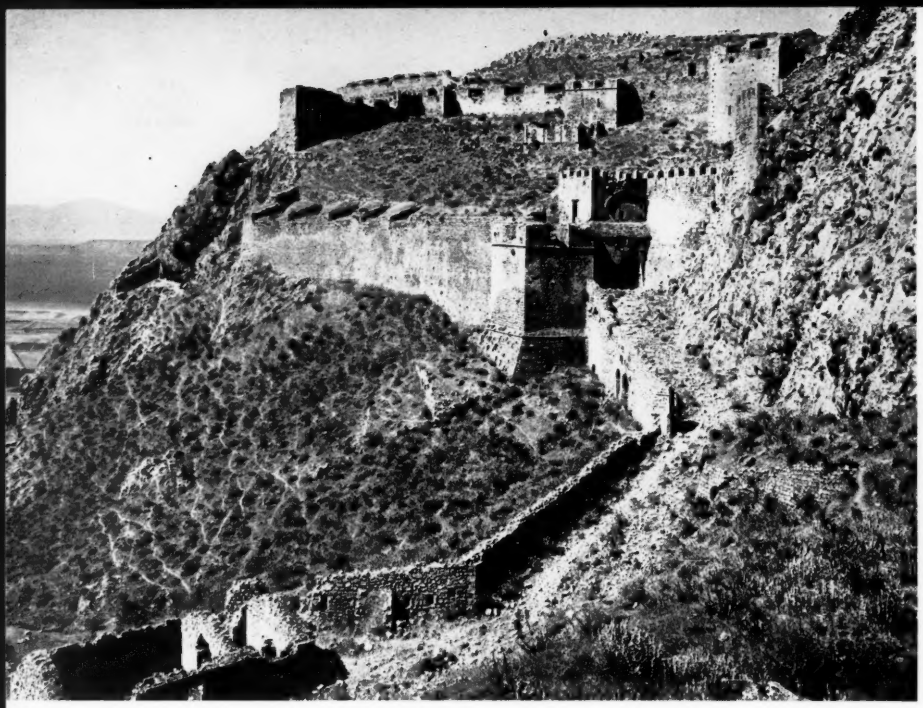


PLATE 8 ACROCORINTH

Seated astride the isthmus which connects the Peloponnesus with the Greek mainland, Corinth possessed an acropolis enormously larger and stronger than most. It was called the Acrocorinth. To hold it was to hold one of the "Fetters of Greece," from early times down through Macedonian and Roman domination, through the earlier Middle Ages and the period of Venetian control.

The Romans considered Corinth important enough first to destroy it (146 B.C.), then Caesar rebuilt it as the capital of all Greece (46 B.C.). About a century later still, Saint Paul lived here for some time among the early Christians, and when absent addressed Epistles to them. Medieval, i.e. Byzantine, Corinth was small and quaint; the glories of Christian Byzantine civilization mostly passed it by. But the Venetians built on the ruined walls of Acrocorinth a grand triple-gated fort. The gun emplacements which show in the photograph above remind us that we have now followed the story of Greece down to the age of gunpowder, which was also the age of printing, and moreover the age when Western Europe rediscovered Hellas, learned to read Greek, and experienced a Renaissance.

more than twice as impressive could have been obtained; but cost prevented.

On the other hand, it was desired—and it happened also to be necessary—to keep the plates and their legends physically distinct from the text. On the text pages of the *New Introduction* there are no additional materials in English supplementary to the legends, which are complete in themselves; conversely, there is nothing in the legends on which the students have to be examined.

EVALUATION BY STUDENTS

Under this heading there is given the result of part of a questionnaire filled out by students who had used *A New Introduction to Greek* for most of an academic year.

Since the questionnaire itself will be reproduced and discussed elsewhere, it is necessary to say here only that it was given to the students in beginning Greek at the very end of the year. The course had been divided into two sections, and each of the two instructors had kept the same section throughout; the questionnaire was given simultaneously in the two sections. During the year neither instructor had discussed or alluded to the illustrations in classes or outside; and class time had been given only briefly, and unsystematically, to Greek history, archaeology, culture, etc., it being assumed that the students knew these were worth knowing and were there primarily to get them later by learning to read Greek first (the questionnaire amply confirmed this assumption: the students made it plain that they were there for business). The questionnaire was given in class, rapidly, 61 questions to be answered in 55 minutes; hence, although "full and accurate" answers (some could be one word, however) were requested and each student filled much of a blue-book, there was no opportunity for lengthy reflection. The theory of the questionnaire was that of the "deep" interview, with a basis for evaluation given by asking for grades and other background data and for feelings; then many questions, designed to check one another and to provide opportunities for "other comments." Only four questions, part of one page, dealt with the illustrations. The students answering these questions, 33 in number, included very few who were likely to fail in the course—the weaker ones had dropped out by May. All college classes were represented and a few graduates, 3 in Divinity School; Radcliffe students were included, 9 in number. Answers were anonymous and were kept by the registrar until all grades were in: assured of security, the students answered with freedom. The replies, quoted verbatim and in full, were tabulated so as to permit scrutiny of both the individual students' answers and the replies to the various questions.

1. *Did you look at the illustrations?*—Yes, 33; no, 0. Five took this occasion to express hearty approval, whereas 3 had looked at the illustrations only casually: one of these thought "works of art [*sic*] should be more interesting and arresting."

2. *Did you read the captions?*—Yes, 28; part or not at all, 5. The 5 included the 3 who had looked only casually at the pictures.

3. *The illustrations: useless; helpful; interesting but otherwise of indifferent value?*—Useless, 3; interesting but otherwise of indifferent value or definitely useless, 10; helpful, interesting, valuable, 17; no answer, 1; answers not explicit, 2. The student who did not answer omitted many other answers; some of the answers he did give were thoughtful, though negative; he had looked at the pictures and read the captions. The one who was looking for works of art wrote, "Could be better chosen." Another, whose grade was A, thought "Indifferent" was adequate; he had looked at pictures and captions only in passing. One C+ student found them "useful, helpful, interesting, and of indifferent value"(!). One B student, who wrote vigorous and even profane answers, said, "Interesting but ineffably

useless." The favorable answers had some variety; they mentionad a few cultural aspects. One C student grasped the intent exactly: "It is helpful to be confronted with something language would help one to understand." An A student spoke of the "relief" provided by pictures. Definite help in Greek history was mentioned by a B— student then enrolled in a course in that subject.

4. A fourth, optional, question called simply for "other comments." There were 18 answers, 1 irrelevant (the profane student; he thought "other comments" called for a remark on the Greek exercises in the text proper of the book), all the rest positive and favorable. The 17 relevant answers showed various degrees of enthusiasm. The A student who had looked at the pictures only in passing and had found them "Indifferent," remarked sourly, "A Greek book needs illustrations." Five specifically asked for more: an A student: 'They show the necessity for a course in Greek history or culture. Would like to see more." One wanted a closer relation to the reading. The most interesting answers were those which expressed preferences between the illustrations. No one praised the air views and panoramas; one said specifically that they were less good. Three asked for more pottery, ostraka, and inscriptions. Another wanted "More art and less curious and interesting civilization": he was the one who had looked at them (question 1) only "Vaguely. Works of art should be more interesting and arresting." Eight answers contained hearty praise. "Unusually handsome": an A student, who, however, wanted more sherds and inscriptions.

Not one of the 33 students, in answering any question, advanced the view that these particular illustrations were objectionable and/or the view that no beginners' Greek book should be illustrated.

In this limited sense, all the answers were positive, and, in considering them, allowances must be made for various factors. Almost any group of 33 persons will have one or two who are "ornery" enough not to express approval fairly when they feel it, or not generous enough to feel it, or glad to "get back at" a book or a course even though they liked it, or because they didn't like it. There are also persons even in today's classes who have no eyes for visual matter, who value only the abstract or the verbal, not the image. And, although it was argued above that the young are habituated to pictures, it does not follow that *any* picture attracts them, or even *any good* picture. Moreover, many students, with heavy study assignments, are not likely to go out of their way to do extra unassigned work. It could also be noted that in answering the questionnaire they had no more than five minutes at most—the questionnaire was not announced or hinted at in advance—to decide on their evaluation of the material in question. A truer evaluation might be available after an hour or perhaps after a year or more: indeed, the *only* specific feature I remember about the book with which I began Greek is the pictures, although, to be sure, the memory of them is wholly unfavorable; the book would have had more dignity with none. Finally, the answers showed clearly that question 3 was not formulated so as to bring out sufficiently clear and exact answers; though in part the unclear answers to 3 were clarified by the other comments (4), except that both questions 3 and 4 omitted to ask specifically for evaluations of the captions.

These considerations, taken in parts or as a whole, might be urged to explain the lack of complete success with these illustrations. The 33 students in question were already committed to Greek and had attained enough proficiency to read Xenophon *Anabasis* Book i entire, and a few short selections from other authors. Hence they should be expected to favor things Hellenic, also to judge with a little better-than-average standards and acumen. In fact, the principal result of the questionnaire as a whole was to show that the students wanted above all to

learn Greek: what helped that, they liked; what took time from that—even the noblest and most inspiring of Hellenic art or history or philosophy—seemed to them a side issue. To some of them, also, pictures meant art, not civilization; and they naturally were pleased only partially. Interest in civilization as a whole, or even in the course of history over long periods, is a very mature and advanced interest.

Be all these factors as they may, it is not for the author to attempt a final judgment on the illustrations and captions; certainly, not after only one year. All the material for a judgment has been laid before the reader, and he can judge for himself. I will confess, however, that I should like to have selected pictures so charming and to have written captions so convincing that all the anterior considerations sets forth in the two preceding paragraphs would have been swept away and even the literal-minded, even the refractory and ungenerous, would be won to admiration. A few grudging words from one of these students are worth far more than the superlatives in book reviews by kindly colleagues.

Seeking improvements, therefore, I am inclined to believe that the illustrations of distant views, and their captions, are of the sort which tend to please teachers and scholars, but not, directly and immediately, students. Delphi on its crags is inspiring to those who already know with some fulness and feel with some warmth what Delphi meant to Greece and ultimately to us all. But, lacking this antecedent enthusiasm, the young student sees chiefly a jumble of ruins on a lot of rocks. Hence among, say, sixteen pictures there should be a large proportion of views and objects which have immediate and intrinsic value and appeal. Greek culture arose in the intense ferment of the polis; and the history of the polis, its antecedents, and the long sweep of history since Rome overwhelmed it are a part of Greek studies and could still be presented, but in many more captions, each more vivid and simpler. Such a solution might be open to other objections, some of them not yet obvious; but apparently the next effort to put illustrations in textbooks should be in this direction.

TEACHING THE HISTORY OF PHILOSOPHY IN GENERAL EDUCATION

Warner A. Wick

I

PROBLEMS about the place of the history of philosophy in general education hinge upon the answers we give to two other questions: about the function of philosophy in that sort of education and about the philosophic significance of the history of philosophy. It is perhaps reasonable that teachers of philosophy should ask philosophic questions of themselves as teachers; and regarding the history of philosophy we should concern ourselves first with what we think its philosophic uses are. In doing so, we can hardly fail to have relied upon a general view of the nature, for educational purposes, of philosophy itself. Having come to some decisions on these matters, we should know better how the history of philosophy might be taught, to whom, and how much.

Beginning, then, with the history of philosophy, we find that, at least in its familiar forms, it is losing ground in programs of general education, recommended as it may still be for specialists. But even for budding professionals the nature of its value is questionable, for the philosophies which I should call most characteristic of this generation agree that the history of philosophy is of little importance as philosophy, however interesting it may be as history. And they may, in some sense, be right.

For example, one of the commonest approaches to philosophic ideas is ruled by the assumption that they are to be both understood and judged in relation to the peculiarities of their times. If all ideas are instruments of adjustment and adaptation, philosophies, too, must be examined in the light of the situations to which their creators needed adaptation and of the tensions they were invoked to adjust. It follows that the doctrines of the past had a significance for their times which they cannot have for us, and their continuing value lies chiefly in their power to illustrate, in rise and decline, the principle that their significance is a function of time and circumstance.

Thus, in the first chapter of his *Reconstruction in Philosophy,* Dewey remarked "with malice prepense" that philosophies are more effectively undermined by exposing the conditions of their birth than by trying to refute their arguments.[1] As an aristocrat, Plato naturally despised any empiricism associated with the menial arts; and the hierarchy of being which is customarily found in Aristotle's world is a projection of his attachment to the obsolescent stratifications of the *polis.*

Of course, this general principle of criticism is hardly the exclusive possession of Dewey and his followers. In the *Republic* Thrasymachus noted that the conception of justice embodied in the laws and customs of a state reflected the interests of its ruling class. The same view is the mainstay of the sociology of knowledge when it is made the first of the sciences, and the "class-angling" of our friends' opinions is one of the more di-

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[1] John Dewey, *Reconstruction in Philosophy* (Boston, 1948), p. 24.

verting uses of the argument *ad hominem*. What is important here is the priority given to the proposition that the meaning and validity of philosophies is relative to their biological and cultural matrixes. Used for assaying all ideas, this principle is in that respect not regarded as being relative to circumstances in the same fashion as other propositions. This view of the history of philosophy therefore expresses a commitment to certain ultimate standards for testing ideas—in other words, to certain philosophic principles. And that is to say that it is the expression of one philosophy among others. In the hands of a man like Dewey the philosophy is impressive; but when it is employed in the criticism of other philosophies, it is not unprejudiced, for it judges them by criteria not their own. To adopt it as a basis for teaching is to justify the teacher's failure to understand other philosophies and to infringe the students' right to learn them.

Another familiar estimate of the history of philosophy, having its own special understanding of what philosophizing is and therefore of what its history records, is one associated with the "analytic" philosophy of Cambridge and the positivism of Vienna. Both are concerned with making philosophy scientific, and in many ways they treat it as if it were a natural science or a branch of mathematics. For example, proficiency in current logical analysis does not depend upon a knowledge of Aristotle's logic any more than success in today's physics requires acquaintance with that of Archimedes. The history of science and of the kind of philosophy which is claimed to have started at last down the secure path of a science may be a liberalizing influence in education. Like all history, it makes us aware of our debts. But that is a matter of neither science nor philosophy but of history. In such a view the educational use of the history of philosophy is in recounting and accounting for the genesis of what is modern in empirical method and logical rigor; and it may incidentally illustrate the need for constant vigilance against those who would try to resurrect old ghosts.

What may happen to the history of philosophy in such a scheme can be seen in a pattern which is increasingly noticeable in some American and British universities, where to be a philosopher is to be an analyst in the technical and exclusive sense, where lectures are about the lecturer's specialized research problems and sound like articles in *Mind*. The history of philosophy, if pursued for more than its possible moral or in deference to tradition, is a question of "scholarship" rather than of philosophy.

Here, too, a particular approach to philosophy, with characteristic principles of meaning and method, is accepted as canonical. It determines standards by which all ideas, and therefore other philosophies, are to be judged, and again by principles not their own. This position can also be defensible and impressive. But it has defensible alternatives which receive a hearing only in mock trials, and it never has to defend itself except against tackling dummies created for its own exercise. This, of course, is not evidence of chicanery; it is what always happens when other philosophies are interpreted according to the meaning their terms would have in some favored doctrine.

I have sketched two ways of reading the history of philosophy. They are more widely accepted than the pragmatism and positivism whose versions of them I have used for illustration, and I suspect that a hankering toward one or both may be found in most of us. For each the history of philosophy is the history of a specifically different kind of activity; but for both it is not essential to philosophy itself, although it may have a derivative importance as a source of illustrations or object lessons. It may, accordingly, be thought wise to teach the history of philosophy on a modest scale even to elementary students. Otherwise they might not be on their guard against reactionary attempts to justify some absolutism or other. Or, as

Philipp Frank puts it in his recent book, students almost invariably pick up "chance philosophies," usually "some obsolete but popular philosophy which will replace the thoroughly logical analysis of science" now recognized to be philosophy in the only strict sense.[2] Unless these views are explicitly examined in the light of current orthodoxy, the young might not realize that they were obsolete.

II

I now want to develop a point of view which does not require us to reject any major philosophic position, not even those which I have outlined above, but which does require a different treatment of the history of philosophy.

What is generically characteristic of philosophy in all its branches and varieties is a concern with principles—principles of inquiry and knowledge, of action and choice, of evaluation, of reality—by which thinking can be regulated and tested. Whether they are called self-evident truths, assumptions, postulates, rules of procedure, or laws of historical development is at present unimportant. It is equally irrelevant to ask whether they may be sought among the characteristics of things, in the deliverances of immediate experience, the laws and forms of thought, or the structure and uses of language. What we must notice is their function. They justify basic distinctions between questions in philosophy and the sciences, arts, and professions; they determine the various kinds of problems and the criteria for recognizing their solutions; and they rule out some lines of inquiry as the pursuit of pseudo-problems.

So employed, philosophic principles do not derive their cogency from the circumstances of history, for even the view that every historical philosophy is significant only, or chiefly, for its own time is, if true, true for all times. To be sure, an acquaintance with the situations in which philosophic principles have been formulated may be of great help in our efforts to understand their bearing upon the problems of their times and of our own as well. But the philosophically essential questions about any philosophy are independent of its history, if only because the relevance of history to other questions is determined by principles whose priority is of a philosophic order.

But if philosophizing is the identification, testing, defense, and application of principles, its materials are to be found in an examination of alternative principles—of what can be done with them, of the various ways in which they can be formulated and defended. These materials can be found nowhere but among historic philosophies and in the dialectical process of testing them which began in the West with the discussions of the Greeks. I then propose a paradox: The history of a philosophy is not philosophically important, but no philosophic issue is understood without an appreciation of the varied ways in which it has been conceived throughout its history. It would be more accurate to say that there are no persistent philosophic problems except in an equivocal sense, for the precise meaning of any issue in philosophy can be seen to shift according to the principles which rule its diverse statements. Philosophers therefore disagree and their solutions are incommensurable with one another because their questions are seldom quite the same.

My proposition does not require that philosophic problems be introduced by chronological surveys of doctrine. On the contrary, the time order might be reversed or scrambled according to one's purpose. But, since every age, including our own, has characteristic predilections, preoccupation with the up-to-date is always confining. In order to be aware of the grounds and consequences of our own commitments, we need to see what happens to our problems and solutions when they are handled by other methods and principles.

If, therefore, we are among those who

[2] Philipp Frank, *Modern Science and Its Philosophy* (Cambridge, 1949), p. 265.

find their crucial distinctions in a logical analysis of the functions of language, it would be well to understand how Hume carried out the plan, outlined in the introduction to the *Treatise,* of basing corresponding distinctions upon a psychological study of human nature. That his famous differentiation of questions about relations of ideas from those about matters of fact is like current classifications of analytic and synthetic propositions should not make us overlook equally instructive differences in the grounds for such parallels.

Another illustration of the effects of parochialism may be found in present discussions of ethical theory, which seem regrettably thin because it is assumed that, if ethics is to have any rational (or "cognitive") status, it must meet the requirements of a theoretic science, either recording empirical regularities, like sociology, or deducing the consequences of postulates, like mathematics. The work being done along these lines is often interesting and may be above criticism as long as its frame of reference is granted. But ethical problems take on a very different complexion if we approach them by way of Aristotle's distinction between theoretic and practical sciences—the latter concerned with the unique and variable rather than with what happens invariably or for the most part and terminating in actions and choices rather than in verifiable knowledge—or by way of Kant's more complex classification, in which both theoretic and practical sciences may be either pure or applied. The point is not that one formulation of the problems of ethics is the only correct one but that several may be seen to be correct, though different.

A dialectical use of historic doctrines such as I have been recommending is sometimes approximated in intent by the familiar contrast of rationalisms and empiricisms, but appeals to experience and reason take forms which turn out to be incommensurable. In the present century alone, Husserl and Bergson, as well as Dewey and Russell, can claim to have founded their philosophies upon experience. We need to dig deeper than the superficial characterization of them as empirical to explain why anything so common as experience should appear to be so different.

In any case my preliminary thesis is simply stated: Philosophy is concerned with principles whose validity is unaffected by time, so that the antecedents of their discovery and statement are not philosophically important. But historic philosophies are the indispensable materials for philosophizing and for any teaching of philosophy which is liberal rather than tendentious.

III

If analyzing, developing, and comparing different doctrines is the way to see the many dimensions of philosophical problems, every student of philosophy must do these things in some degree, for they are philosophy itself. But, having argued this thesis about the philosophic uses of the history of philosophy, we must still come to a decision about its place in general education, since it might seem that only specialists could do much philosophizing of this sort and it is not clear that it is an art which everyone should master or even practice.

But if philosophy is concerned with the grounds for sorting out and relating the different kinds of questions that everyone must face in some form and if these principles justify the various methods which may be expected to yield valid solutions to such questions, it is everybody's business. Moreover, everyone with opinions about the relevance of his knowledge to the realms of nature and human activity has a philosophy—naïve, incoherent, and unacknowledged as it may be.

We all know students (and colleagues) in the natural sciences who, having discovered that all we ever do is to transfer matter or transform energy and that "scientific method" is triumphant in physics, are sure that physics is the basic science,

since all others deal with specifications of its subject matter and employ approximations of its method. Physics, then, is made to function as first philosophy. Or we have met social scientists who see laws of social relations and their evolution as the source of principles because of the obvious truth that all human knowledge and activity can be viewed as social phenomena. And there is the man who regards the humanities as basic because all culture is a product of human art—because whatever we know or do is subject to the images we have constructed to interpret and control experience and we have no access to nature or to life except through the mediation of our artifacts. All these views are the effects of philosophic principles at work, taking their departure from propositions which, being difficult to deny, hardly require support from acknowledged authorities in the history of philosophy. Yet each has a continuing history, beginning at least with the natural philosophers and sophists of Greece.

The moral of this story, so far as general education is concerned, is that everyone has a philosophy, however unsophisticated he may be; and, if it is not a philosophy which unifies all knowledge under a single architectonic science like the examples I have mentioned, its distinctions will have principles as well as its assimilations. The least we can do for the ordinary student in general education is to make him aware of the consequences and alternatives of his own philosophy; and the history of philosophy is rich in discussions of the means by which such syntheses and distinctions are effected, of their implications, and of the difficulties as well as the advantages that go with being committed to them. Perhaps the most we can do in general education is to help students understand the issues about which the experts and pseudo-experts argue. This they can do if they recognize, through having worked with samples of them, the kinds of principles at work in the competition of ideas.

It is obvious by this time that a use of the history of philosophy such as I have been advocating will have a limited need for the customary narrative textbook or narrative course. At the lowest level such books and courses provide a survey of opinions; but there is no philosophy in them unless the opinions can be seen to function as principles or unless they are given meaning by other principles. It is for this reason that discussions of teaching methods on the level of audio-visual aids to memory are so irrelevant in philosophy. It is no problem to make students associate the name of Thales with water. Pavlov could have done it with his dogs if he had shouted "Thales!" at them instead of ringing his famous bell; but he would not thereby have made the dogs philosophize.

At a higher level, and more typically, philosophy does appear in such surveys but only as the philosophy of the author or teacher. It is seldom really examined. The result is a particular version of the making of the modern mind, with opinions collected, caricatured, and ordered according to the demands of some special doctrine and often in the hands of a second-rate thinker. The student may learn to place opinions in the proper pigeonholes, but it is the design of the pigeonholes themselves which is philosophically important. If a survey of opinions as such is meaningless, one conducted in the interests of one philosophy is unfair—at least as unfair to the student as to the doctrines which are surveyed.

If philosophizing is the student's business, he must become acquainted with the process at first hand in first-class examples. To do this he need not take complete systems at a bite, for philosophers have been obliging about bringing their principles to bear upon specific problems, and it is more enlightening to compare different approaches and solutions to the same problem than to achieve a well-rounded view of each system whose author is consulted.

Of course, students need help if they are to discover what is going on in a

philosophical text. But they need to be helped, not carried; for no one ever understood a difficult problem without thinking about it and solutions presented ready-made are not recognized as solutions to real problems, even though they may be remembered long enough to be reproduced in examinations. Directed analysis and discussion of selections from original authors are, I think, the chief devices of anyone who wants to teach something about historical philosophies that can be used by students. The principal question is always, "What is the author doing here, and why?" and it needs to be considered in his terms, not in those of someone who knows what he should have been doing. So long as this main point is not forgotten, lectures and readings in historical backgrounds may be useful. They are only incidental to philosophizing, but they may help by sketching in the occasions which have prompted other men to practice it.

It has been the burden of my argument that the chronology of philosophy is not its essence and that the history of philosophy, as history, is without significance unless one understands the issues which have been discussed in it. It is nevertheless true that historical formulations of philosophic problems have influenced one another, as Kant testified to the stimulation of Hume. Aside from the fact that I think courses in the history of philosophy degenerate too easily into merely tracing the development of technical devices—gimmicks whose employment may characterize an epoch—such studies can be important at some levels of a student's education. I simply think they are not essential for undergraduates.

In the first place, it does no good to remember the peculiarities of the transcendental method unless one understands the problems it was supposed to solve. As Jean Wahl reported a Mount Holyoke student's complaint, "I understand the answer, but I don't understand the question." In the second place, emphasis on the fact that most thinkers of an era tend to speak in a common technical language leaves out what is usually of greater philosophic importance—that the commonplaces are used to mean very different things and that it is the basic assumptions of the contenders which account for the differences in meaning. For example, Otis Lee's posthumous book points out that nearly everyone in the seventeenth century sought simple intuitable elements by the "analytic method" in order that they might be recombined in deductions and demonstrations according to the "synthetic method."[3] But this common use of a device permits the greatest latitude for differences, not only about where or what the simple elements may be, but about what may be built with them. Similar diversities in philosophy occur when men ask similarly phrased questions about the unity and plurality of substantial forms or about the logical analysis of the language of science.

So, if Locke was influenced by Descartes in such a way that he, too, looked for clear and distinct ideas which could be the elements of intuition and deduction, he also grievously misunderstood him—as Aristotle misunderstood Plato. The philosophies in both cases are essentially different. Their meaning and validity are quite independent of their common topics and of the question whether the contenders happened to have understood each other. I say, then, that tracing historical influences is interesting; and graduate students learning their trade should be thoroughly at home with the technical devices in philosophical literature. But these matters are still of secondary importance and may well be distracting to undergraduates who, in their general education, need to learn the implications and alternatives of their own commitments rather than the materials and techniques of a learned profession.

[3] Otis Lee, *Existence and Inquiry* (Chicago, 1949).

SOME PROBLEMS OF A COURSE IN "CULTURE AND PERSONALITY"

David Riesman

EVERYWHERE today we hear calls for the unification of the social sciences, sometimes of all the sciences. We have a great many programs and exhortations. Very likely we need these because the resistances to unification are great; hence we need to keep up our spirits by this kind of propaganda. There comes a point, however, where we need to show some actual progress toward a goal, or the advocates of liberal education and the kind of general outlook it explicitly or implicitly bespeaks will either become disillusioned or content themselves with being still another specialism, which has won a small niche for itself in the form of journals, congresses, and jobs.

Such progress comes on two fronts: research (which I use broadly, to include all considered communications among professional colleagues) and teaching. In both cases what is usually called an "interdisciplinary approach" has frequently been an additive one. One brings into a research organization representatives of various fields and various methods. If one has enough money and good people, work gets done, but it is not usually unifying in its consequences. Thus, when the Japanese-Americans were evacuated from the West Coast, one observer studied the political aspects, another the social-anthropological ones, a third the economic consequences. Even so, it was an advance to have all these disciplines represented in concern with a single problem, but the additive method would not necessarily lead to advance in actual homogenizing of the disparate disciplines themselves. Likewise, in many college and graduate programs which aim at general education in the social sciences, the various lectures, or periods of time are parceled out among a number of lobbies, depending on their local strength. Then, it is hoped, if these teachers will "talk to each other," there will be unity, at least for the students.

It is only recently that we have begun to get beyond this point. A great deal of thought, for example, has gone into the program of the Harvard Department of Social Relations; the boundaries between sociology and social anthropology, between academic "brass-instrument" psychology and social psychology, and—perhaps far more important—between "theory" and "empirical research" appear to be breaking down. Or, to take another example, if one examines *The Authoritarian Personality*, by Adorno, Frenkel-Brunswick, Levinson, and Sanford, one sees a really outstanding achievement of interdisciplinary research which has meshed the talents and the outlook of various breeds of psychologists and philosophically oriented students of society. In these instances the need to work out a specific and specifically systematic course program for students or to solve a concrete research assignment led to advance. The course in "Culture and Personality" in the College of the University of Chicago, some aspects of which I shall discuss in this article, may be viewed as part of this general development.

In another aspect this course grows out of the effort of the College to promote a

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more or less interrelated pattern of courses, each of which is taught not by one instructor alone or by a star or two and their graduate satellites but by teams of colleagues as equal as possible in voice, if not in rank or years of service.[1] Doubtless, many readers of this *Journal* have had some experience with the problems of conflict and co-operation involved in developing such a staff-taught course; it is an experience which is frequently renewed at Chicago, since the courses are seldom "frozen" for more than two years at a time and since changing personnel invariably and advantageously bring new enthusiasms (and aversions) —even apart from the changes in a field brought about by new research and perspectives which gradually infiltrate undergraduate teaching.

This article, however, is not intended as a description of the content of the course in "Culture and Personality," an appropriate title for Social Sciences 2, as it is generally called. Rather, I propose to speak quite personally out of my experience in the development and current teaching of the course. At the outset I shall touch on the content of the course only in so far as this bears on the problem of unification. Then I shall go on to discuss some of the difficulties involved, from the side of the students, in being confronted with materials that touch them closely and, if one is not careful, occasionally traumatically.

PROBLEMS OF UNIFICATION

Courses in "culture and personality" have sprung up in many places lately.[2] If I had to characterize in a single sentence the contribution which our course makes to this development, I would say it lay in our emphasis on the relation of history to the other social sciences. For it is fair, I think, to state that much current work in social anthropology, sociology, and social psychology (as well as the newcomer, social psychiatry) operates, so to speak, in the present tense. The categories used are not developed in order to capture social change but rather to encompass contemporary relationships. Thus social anthropology ordinarily describes a tribe in its setting, as sociological community studies ordinarily describe a town (such as "Plainville" or "Southerntown" or "Yankee City") at a particular moment of time; moreover, the emphasis on "functionalism" leaves little room for historical speculation and reconstruction. While such works as *Democracy in Jonesville* or *Small Town* have greater historical reach, little contact has been made between the methods of history and those of the community survey.

The typical historian, on the other hand, though focused on the past and allegedly concerned with change, has not really overcome the political-diplomatic-military emphasis of his tradition, even—or especially—when he adds a chapter or two at the end as to how "the people" lived. Ordinarily, he neither understands nor appreciates the approach and methods of a psychoanalytically oriented anthropologist or sociologist. How can the historical approach find out, he would say, what the mass of personalities were like in a given epoch, in terms of some of the psychological categories of today? How can he tell whether people were more "anal" in the nineteenth century than today? And so he concentrates on

[1] For a description of the College program see *The Idea and Practice of General Education*, by Present and Former Members of the Faculty (Chicago: University of Chicago Press, 1950); and for a description of the three-year social sciences sequence in particular see the chapter by Milton B. Singer in that volume, pp. 123–48.

[2] Such courses go by different names: the individual and society; character and culture; human nature and society; social relations; human relations; and so on. The names are not important, but they can become dangerously so if one allows the course to get bogged down in semantic arguments, for instance, about whether "culture" belongs to the anthropologists only, and how it differs from "society," which belongs to the sociologists; over "personality," too, there can be arguments.

the lives of the leading men, or, if he has aspirations to be a "social" historian, he tries to capture from fugitive documents what the common people did, how they amused themselves, what they wore. Yet in neither case is there an emphasis on the mass social-psychological dynamics of history.

It would be absurd to contend that we at Chicago have "solved" the problem of this professional barrier and have, in one undergraduate year, filled in the no man's land between history (as customarily practiced) and the other social sciences (as customarily practiced). Much research, many institutional changes in disciplinary stances, will be necessary before more of this fill-in occurs; it will never become smooth and complete. What we can say, however, is that we have tried. Since the staff includes men trained in economics, law, and political science, as well as in sociology and anthropology and history, we can hardly help being on guard against the dangers of "psychologizing." That is, we do not see all events in terms solely of "tensions" in interpersonal relations; we see the world as including things as well as people. Sometimes, in fact, our respect for history and for its institutional legacies is almost too profound, so that we have difficulty in giving sufficient weight to the more impalpable data disclosed by contemporary psychoanalytic and anthropological investigations.

It is, however, to these data that the course devotes much of its attention at the outset; we tackle the problems of history only in the second half of the year. As I propose to give a roughly chronological account of the required readings, I shall have occasion to return to this historical orientation of the course later on.

We begin the year with a book which is somewhat out of the main stream of research in "culture and personality," namely, Gunnar Myrdal's *An American Dilemma;* and the staff has rather mixed feelings about the book and its value for us. Our selections from it are chosen to show how, over the course of time, a "reflexive" Negro culture (or, rather, set of cultures stratified by class) has developed in the United States in response to white pressures and expectations and how, conversely, white culture (again class-stratified) has been influenced by the ideologies, stereotypes, and guilts that result from the subordinate position of the Negro. Myrdal himself seeks to combine a historical and an institutional approach (including an emphasis on ideas which links his book to the students' earlier studies in American history) with a psychoanalytic approach to such mechanisms of group hostility as rationalization, projection, and scapegoating; he represents some of the problems of unification in his own person.

He also represents another tendency with which it is well to acquaint our students at the outset, namely, great self-consciousness about methodology and the problem of objectivity. Are the social sciences "scientific"? What about "bias"? What about "laws"? What is the relation of the social scientist to "policy"? Since even a sophisticated student body is likely to come with a stereotyped view that there is a sharp dichotomy between the natural and the social sciences (the former being thought better and more scientific), it seems well to spend some time on these questions.

It is only after Myrdal's book has served as a kind of jumping-off place—a body of data and concepts which the students, for the most part, can relate to their own inescapable experiences or attitudes in the field of race relations—that we proceed to an effort to "integrate" the psychoanalytic view of culture and personality with that of social anthropology. It is this integration that is the distinguishing mark—indeed, the birthright—of this whole mode of investigation that is called "personality and culture"; it also provides the analytical tools which our students will use throughout the

year. We develop this theme by staging a kind of "dialectical argument" between Freud and Ruth Benedict.

We spend some five weeks on Freud, reading *The Origin and Development of Psychoanalysis* (the "Clark University Lectures"), *Civilization and Its Discontents*, and the famous letter to Einstein, "Why War?" Although there is a temptation to bring in the great variety of recent work on "personality," we prefer not to scatter our shot: we stick pretty closely to psychoanalytic theory (although by no means all members of the teaching staff believe it to be the "best" theory) mainly as a heuristic commitment to focus our energies. While our strategies in teaching Freud vary widely among different staff members—and with the same staff member from year to year—our general emphasis is on the interpersonal, as summed up in the Oedipus complex, and on such mechanisms of social import as sublimation and projection. We minimize concern with the "topography" of individual personality: id, ego, superego, and their relations.

Above all, our effort is to see Freud as a student of socialization and, especially in *Civilization and Its Discontents*, as its critic. Following him we read Ruth Benedict's *Patterns of Culture* and contrast her more sanguine view of culture and its socializing consequences with Freud's pessimism.[3] Her greater belief in the plasticity of the individual and in the diversity of culture "patterns" leads us into the problem of the psychic unity of mankind and its implications for a theory of value. In this Freud-Benedict debate the danger is that we will simplify both: that we will see Freud as the exponent of unchanging, biologically rooted, instinctive human nature and Benedict as the exponent of complete cultural relativity, a member of the "culture-can-do-anything" school. But in lectures and small-group discussions (we have two a week of each) an attempt is made to catch the ironies and ambivalences in both positions and to see their combination as a tool of extraordinary power in contemporary social research.

During these discussions the problems that arise are those of securing some grasp of the frames of reference and procedures of psychoanalysis, of social anthropology, and of the relations between them. We follow Freud and Benedict with a five- or six-week period devoted to an examination of child socialization. We read from Piaget's *The Moral Judgment of the Child* the empirical data on how "rules of the game" are developed among the marble players—a wonderful illustration of how much can be done with how little in the way of "apparatus." This opens up the domain of cross-cultural comparisons, and I have encouraged my students to recall and observe children's games to compare with the unaggressive and co-operative Swiss children of Piaget's book. Furthermore, from year to year we have used readings alternately on the socialization of Hopi, Navaho, or Japanese children (this year we shall read Margaret Mead's *Coming of Age in Samoa*). Here also there has been a tendency to focus on problems of method.

We read Allison Davis and John Dollard's *Children of Bondage* with an eye both to their attempted combination of psychoanalytic theory and learning theory and to the review and expansion of material in the Myrdal reading bearing on the relation between social class and child socialization practices. The students generally conclude that the fact of being a Negro is far less important than one's social class position in helping to explain personality development, perhaps espe-

[3] Except in the very general way that the physiological and generally biological determinants of human societies present themselves in the eight or so weeks we give to Freud and Benedict, the course leaves them out of account. Too, the very interesting work on psychosomatic correlates of cultural factors is not explored but is left to be treated in the courses on the natural sciences. To a necessarily limited degree, other analytic, psychological, and anthropological viewpoints are canvassed in lectures and optional readings.

cially at the lower end of the social scale. While students often readily identify with those of *Children of Bondage* who are middle class and are willing to make an effort to identify with those who are lower class, they are less prepared to grasp patterns of upper-class behavior from this book. So it is partly in order to give some occasion for the discussion of upper-class ways of life that the staff chose to follow *Children of Bondage* with a "profile" of a prep-school boy drawn from the series of individual case studies which came out of my own work for the Committee on National Policy at Yale.[4]

It is only after this material has been developed that we proceed to examine Western culture and personality in the light of history. We are handicapped, of course, by the limited background in history of most of our students. We are therefore usually the first to introduce them to the dichotomies which cluster about such terms as "folk society," "industrialization," "feudalism," "status society," *Gesellschaft*, and so on. For studies that give a sense of the changing personality of modern man under the impact of industrialization and urbanization, we rely on some of the classics of social science; we pick from year to year from among Adam Smith, Marx, Max Weber, Malthus, Durkheim, and Veblen.

We read, for example, some of those sections of Marx, taken from a good many of his early writings as well as *Capital*, that deal with the change from feudal to capitalist times and with the differential social roles—hence, in modern terms, social personality types—forced on capitalists and proletarians by their differing relations to the means of production and consumption. We read the *Protestant Ethic* of Weber (and related portions of the *General Economic History*), with its attempt to distinguish the specifically modern capitalist from the traditional pre-Puritan type in terms of the differences in religious ethics which activated them. We read Veblen's *The Theory of the Leisure Class*, with its description of how the requirements of conspicuous consumption are translated into detailed behavior patterns, ideologies, and even tropisms for the different sexes and social classes as these develop in historical sequence.

Yet, as my statement of these works may already have implied for the discerning reader, there is something unsatisfactory in the very scope of these men for a course in "culture and personality"—just as with Myrdal we may become fascinated by the Negro, so with Marx we are likely to be fascinated by the problem of capitalism or by Marx himself. The magnetic fields set up by these men are much more powerful than the still embryonic "field" of culture and personality.

Perhaps we should consider adding to our course the body of work by writers such as Erich Fromm, Talcott Parsons, and Erik H. Erikson, who have a historical focus but who are writing within the context and vocabulary of this new field. I think, however, we would lose a great deal if we read only twentieth-century writers, even though the latter deal with historical questions. We would come to think, perhaps, that only work which is called "culture and personality" is relevant to the field, and this would defeat one purpose of general education which, as I understand it, is to evoke students' ability to apply their knowledge in uncategorized situations, outside the taxonomy in fashion in a particular discipline. For our concern in the course is not primarily professional, at least in the narrower senses of the term. We seek to give to our students both more and less than

[4] There are some significant methodological differences between my own work with interview material and that of Davis and Dollard, though the concern in both cases is to apply both psychoanalytic and social typologies to concrete life-history data. We hope that in the course of discussion the students will become sensitive to some of the difficulties and complexities of this ongoing attempt.

an introduction to a "field" as it is currently in process of being defined by those "in" it. The variety of aims among our students, the majority of whom will not go on in the social sciences (other than to take the third course in the three-year sequence, Social Sciences 3, entitled "The Conditions of Freedom in the Modern World"), drives us to concentrate on the task of orienting them in the culture in which they live, in part by awakening their curiosity as to how they themselves, as well as their culture, came to be as they are. And it is this drive, too, that leads us to tackle, not alone such relatively manageable areas as the Plainvilles and the Pueblos, or even the whole American Negro culture, but the totality of Western industrial society and its subcultures as these have altered through time.

But even for those students who will go on in social science, I think it productive to confront them directly with the problem of assimilating and using Malthusian, Marxist, Weberian, and Veblenian concepts in the development of their own position on the firing line of contemporary speculation. This is perhaps especially important at the present time, when, as already indicated, modern anthropology and sociology tend to reject any effort to develop a historical typology—partly because the data are simply not available and also because, especially since Boas, evolutionary anthropology has been almost, if not quite, discredited. Veblen, with his stages, his "predatory" culture and "pecuniary" culture, seems highly regarded now only by literary men and "orthodox" institutional economists. I myself feel, however, that this is a temporary stopping place in the continuing interchange between historical and unhistorical explanatory systems and that Veblen and other "dated" writers who thought in historical, even in evolutionary, terms will come again into the perspective of work in the more "social" social sciences.

The very quality of these classics leads, however, to the further difficulty that they tend to cast into disproportionate shadow those parts of the readings that are based on more contemporary and more "empirical" materials. The course has still, I feel, to find a way to meet this problem, to show in any effective way the relation between general "theory" and "data"—and the treachery of the distinction.

The course next includes a section on the impact of industrialization on personality, using a series of readings that deal more or less concretely with factory life. We read excerpts from Frederick Taylor's *Scientific Management* and contrast him with Elton Mayo's *Human Problems of an Industrial Society*. The students appear to be violently unsympathetic to Taylor, while proving themselves children of their times in their sympathy for Mayo's account. While we do get from these works, by implication, a picture of the personality type of the industrial manager (to be compared with Weber's and Marx's pictures), we learn very little about the culture of the industrial worker today.

We have, however, found in Everett Hughes's *French Canada in Transition* an account of the impact of factory work and urban life on *habitants*, and excerpts from this round out this part of the course. The use of this book is evidence that the course is historical in no archeological sense; more strictly, perhaps, we should call it comparative-historical, for we assume that the stages of development of the advanced industrial countries, or of classes within them, are now being more or less repeated in the non-industrial regions, where, for instance, we can see at work the processes Weber described. However, the course needs further development in this direction, and the gap is not sufficiently filled by those lectures we have concerning the impact of industrialization on Chinese or Japanese personality. Here, perhaps, is an area where economists, anthropologists,

historians, and psychologists might work fruitfully together; very likely, out of the many area studies of the non-Western world which are now progressing, readings will emerge which will help us at this point in our course.

While the historian takes a backward look, we try in this course to look, Janus-like, both ways, and this leads us, in the last part, to deal with the potentialities of deliberate change of culture and personality. While we live in a time when grim experience with planned manipulation makes us wary of efforts to "change human nature," it was, of course, not always so: in the days of the Enlightenment, the argument over the mutability of "human nature" unambiguously divided progressive thinkers from reactionary ones. The progressives have won that argument in a way, for it has been shown that social character can be changed; but this empirical datum has only raised in a more profound way the issue as to the sources of norms for such change. How, if at all, can one defend an ideal of human nature? And, since personality and culture comprise an inseparable unity, what kinds of culture are "best"? Is whim our only guide beyond relativism?

We inaugurate this congeries of problems with Robert Owen's *A New View of Society,* a sanguine reminder of an era when, with awakening understanding of the importance of the environment for shaping personality, forward-looking people had high hopes for the transformation of mankind as a whole through conscious effort. The end of that road, in the literary sense, is to be found in the "anti-utopias" of our own day; from them we have chosen Aldous Huxley's *Brave New World* as a sardonic foil to Owen's enthusiasm.[5] In much the same way, we play against each other Sumner's *Folkways* and Dewey's *Human Nature and Conduct,* with their very different notions as to man's capacity to take control of the processes of personal and cultural change and as to the possibility of developing rational norms for evaluating cultures. And, to see what is really involved in the attempts to change any given individual, we read Bruno Bettelheim's account of a delinquent's slow and partial "thawing out" by the application of psychoanalytically oriented therapy in an elaborate institutional setting.[6]

The problem of the role of contemporary social scientists in culture change cannot be avoided. It is raised by Myrdal at the beginning of the course and is returned to in connection with the readings just mentioned at the end of the course. Social science itself is, in this way, put into its own institutional setting. Perhaps I should not say "put into," for the course never for long forgets that it is itself part of a historical cultural process—one very much worth looking at.

PROBLEMS OF STUDENT REACTION

For one thing, "culture and personality" is not only the name of a course and a field of current research but also a preoccupation of our popular culture generally. Psychoanalysts and anthropolo-

[5] We also read at this time another book that deals with similar themes from a somewhat different perspective than Huxley's, Silone's *The School for Dictators.* Silone concerns himself with the social-psychological appeal of the leader and with how the leader goes about getting power. The caricature of the American social scientist, Professor Pickup, who tags along with the would-be dictator, Mr. W, is a nice reminder that social scientists' worry about being manipulative often conceals delusions of grandeur—they usually don't have enough to say about what happens in politics to justify worrying as much as they do about the role they should play. But Silone's book is also a reminder to the staff that we have not given an adequate rationale or place in the course to the problem of the relation between political change and personality. We have found very useful in this connection Talcott Parsons' essay, "Certain Primary Sources and Patterns of Aggression in the Social Structure of the Western World," *Psychiatry,* X (1947), 167–81. But we have not agreed on other readings that are at once sufficiently searching and concrete.

[6] "Harry—A Study in Rehabilitation," *Journal of Abnormal and Social Psychology,* XLIV (1949), 231–65.

gists, despite the fact that even today they are each but a handful in number, have become stereotypes in popular fiction and film; at the same time, the more literate classes have become accustomed to the concepts of cultural relativity and of the existence of the unconscious, of childhood sexuality, and much else that, even twenty years ago, was startling. But the spread of these new gospels has been uneven, and, while many students arrive with some familiarity with them, others come from more "ethnocentric" and less emancipated homes.

This difference in level may be one reason why our course seems to raise, in the minds of parents no less than of administrative officers, more problems of staff tactics in teaching than do courses, let us say, in mathematics or Latin. Yet it seems to me wholly erroneous to suppose that only teachers of "new" subjects can do harm—indeed, what harm they can do is perhaps more evident and hence less dangerous. I would guess that as many students are traumatized by sadistic teachers of natural science as by sadistic teachers of social science and that proportionately more "learn" in English that they are dull and uncreative than learn it in sociology. In talking, therefore, about problems of student reaction to our own course, I am far from implying that like problems do not and cannot arise in every course, though often under different labels and disguises. And again I must remind the reader that I speak only from my own experience; my colleagues would probably emphasize other problems.

We begin the year's work with the study of Negro personality. There are often one or two Negroes in the discussion groups; and the embarrassment that their presence causes at first makes it possible for students slowly to learn that one can become matter-of-fact in discussing controversial and touchy issues. But, on the whole, the problems of Negro life, leadership, and ethos are somewhat remote from the lives of most of our students, though later on when we read *Children of Bondage* quite a few identify themselves with "Chester," the mobile good student who is on his way up the class ladder, or with some of the other vivid portraits in this book. Thus the students have a little time in which to become acquainted with the course and its methods before plunging into psychoanalytic theory directly.

Nevertheless, if Negro personality is remote, the problem of prejudice is not, and there will be some students who feel guilty about harboring anti-Negro feelings on a campus devoted to race tolerance. It may be some time before they can admit to such feelings, and the issues concerning white ambivalence that Myrdal raises will be discussed as if they involved only those other people, such as "reactionary" Southerners; conversely, an image of "the" Negro will be built up to meet these repressed needs. Gradually, with good luck, it may become possible for the students to look at their own feelings with less shame and to realize that hardly anyone in the culture—certainly, hardly any Negro—escapes some feelings of anti-Negro prejudice. It sometimes appears, then, that the emancipated ones are not quite so emancipated as they profess, the "reactionary" ones not quite so bigoted.

Very seldom will all this happen by direct admission but rather by much more subtle and inferential statements by students about others than themselves, their parents, for example, or siblings. In this way the students make the discovery that at least one of Myrdal's methods, that of subtly confronting Americans with their own self-contradictions, is not something special and alien to their own experience but rather something that they can participate in both in class and out of class.

Myrdal in the main follows the impressionistic, informal, data-gathering methods of Tocqueville and Bryce, though he had a larger and more specialized staff at his command than they did. But when it comes to Freud, the students are not

able so easily to put themselves in the writer's place as clinician, and their efforts *inter se* to do so can be quite disruptive of their lives. For Freud himself (as against diluted popular Freudianism) still comes as a shock, at least to some students. These students are engaged in making the difficult break with home, and it is precisely on the "family romance," the Oedipus complex, that Freud hits home. I have sometimes found that the discussion of the problem of incest as an anthropological problem is a way of allowing the students' own problems to become at once sufficiently remote and close to be discussible. Here again vigilance is required to protect the slowly awakening from the aggressively self-emancipated and to see that discussion neither avoids confronting the student with the material nor bludgeons him with it.

Yet, whatever such delays of impact, a course such as ours in "culture and personality" can hardly help raising for the student the twin questions: "Who am I?" and "Who are we?" Psychoanalytic thought claims to reveal the real "I," the true self—the ego with its defenses and internal "enemies." But, as already indicated, while this thought hits home to some students who meet it for the first time, we face the opposite problem with those students who have previously acquired a glib exposure to it and for whom, far from being a shock, it early becomes a stereotyped way of viewing—hence of avoiding—experience. Indeed, Freud, focused as he was on his foes, hardly realized how psychoanalytic terminology could itself become a defense mechanism, a blockage to self-awareness. One need only hear students discuss their own and others' reactions in terms of "excessive super-ego" to see how easily the jargon can become a means of creating distance from one's real emotional life. Likewise, the jargon becomes an "offense-mechanism": students use analytic terms about one another as once they would have used swear words. Given a disparity of student backgrounds, this abuse can become quite damaging for sensitive youngsters who are simultaneously faced with career choice, leaving home, and pressing problems of group adjustment.

However, what appears an obstacle can be turned into an advantage: in the teaching of Freud these very meannesses and absurdities in his misuse can be analyzed profitably for a better understanding both of Freud and of the role of ideas in the cultural process. Freudian terms are now popularized by all the mass media as well as by teachers in progressive schools and by books and parents in progressive homes; thus the students come to the study of Freud with many preconceptions, and in the little time we are able to spend on him we can hardly hope to prevail entirely against the tide of cultural stereotypes and misunderstandings.

In some quarters, indeed, so great is the reputation of Freud that the text becomes not only impressive but oppressive: the student "listens" to Freud to the complete exclusion of his own reactions. This is ironic, since Freud learned to listen to himself and to his patients with a heroic freedom from preconceptions. But in social science what the great thinker asserts as a theory may, by virtue of his assertion, turn out to be "true"; this is the phenomenon of the "self-confirming prediction." Thus, if Freud asserts that men are basically hostile, and this is believed, then men will tend to deny the stirrings within themselves of more benevolent motivations or to reinterpret these as mere reaction-formations; and they will be on the lookout for hostility among others. Plainly, if such outlooks are widely shared, Freudianism becomes an ideology which, in turn, affects historical events. This process the students can observe in their own interaction; they can see how their expectations concerning others' behavior influence both that behavior and their own.

Historically, of course, this process of "ideologizing" a thinker selects certain elements of his thought and neglects other elements, and there is an inevitable

distortion. The staff as well as the students face the task of going back to the original text, of Freud or Marx or Veblen, with as fresh and unstereotyped an approach as possible. Moreover, they have to battle not only fifty or more years of ideology and "interpretation" of these authors but the ever looming final examination system (and the inescapable ideology about that!) with its felt pressure for quick ingestion of the author in terms of statable propositions that can as quickly be produced on notice.[7]

Many of these problems tend to loom less large, however, if the teacher is sufficiently convinced that all reading which does not somehow, sometime, get related to the students' own experience remains rote learning, fundamentally meaningless and incapable of application to novel problems. No amount of talk about psychoanalysis is satisfactory, for example, unless the students can actually catch their own unconscious unawares, so to speak, and can come to believe that they, too, have an unconscious and that it operates in their own daily lives. Indeed, this is perhaps one advantage that a course in "culture and personality" has over the conventional laboratory course in chemistry, where the student can make his "experiment"—one that thousands have made before him, as he well knows—come out right.

Another example in which the bearing of student experience is important may be taken from our discussions, based on Adam Smith, Marx, and Durkheim, of the consequences of the division of labor for personality. While it is some years since I have had students in class willing and able to give one or another brand of Marxist answer to our questions, students nevertheless share the widespread American economic determinism that antedates Marx and postdates his often announced burial; thus they come to class with stereotypes about "the" worker and "the" capitalist and their motivations. However, I have had numerous students who have had jobs, not only for the summer but sometimes for several years running, in some branch of modern industry, and what they have to say is usually helpful in rendering the discussion of occupational personality less abstract. Yet these students are ordinarily reluctant to offer their own experience as relevant testimony.

As one of them put it, "I am not a sociologist. How can I assert my own observations against those of great and experienced men?" And if students who have themselves had opportunities for observation are loath to speak, how much more reluctant are the other students to listen to them? To get students to listen to one another is far more difficult than to get one to listen to himself. Yet it is precisely one of the aims of the course, as I see it, to encourage the students to relate their own experiences to their reading. Whereas in an earlier day and even today among a different type of student there would be a tendency to credit "hard-headed common-sense" against anything in a book, these students would often prefer to deny their own and their fellows' perceptions where these contradict or throw doubt on some famous generalization in print. They are in this like the avid readers of the weather report who need to know from the newspaper whether they are entitled to be hot or cold, as the case may be.

What frequently happens, however, is that a student will suddenly realize that the factory experience being reported by him does not stand outside social theory.

[7] In recent years, the examination in Social Sciences 2 has come more and more to require of students an ability to apply concepts imaginatively to new material. But fearsome myths about what the examinations demand persist, and students are frequently unwilling to believe even their own experience of the examinations, where this contradicts the ideology. One reason among many for this may be that the students' eagerness to play the "game of authors"—to compare, rank, and arrange the great men in a kind of battle array—results in part from transmuting the students' rivalry among themselves into a rivalry of authors, rationalized by supposed examination necessities.

Some action of the workers he did not know he noticed—let us say, how they read the newspaper—will strike him as bearing on a point made in a book or in class. Another student will have noticed the same, not this time in a plant but in a department store. Still another will say it was quite different in the drug-supply house where he worked—possibly because of ethnic differences. When this has happened a good many times and has been built by the class into some kind of framework, many students gain a somewhat greater confidence that they, too, can be social scientists and judges and critics of social science—that their qualification for this is principally their experience of life and their ability to observe human beings.

This development, however, brings in its train a further problem in handling group discussion. At the beginning of the year those are often most articulate who are least involved, while those who are struggling to relate words in a reading to their own observations feel that they are stupid. Since silence in class is hardly more welcome than in a broadcasting studio, the teacher must constantly choose between, on the one hand, patient waiting for the more involved group (and, of course, for the "sleepers," too) to grasp the intellectual point and, on the other hand, lively and heady discourse with the ready talkers. While, obviously, such dilemmas exist in almost all teaching, regardless of topic, my own interest in students' life-experiences tends to lead to a new class hegemony. It is not always the most articulate who come to take the lead but those, such as the veterans, who are older and have seen more, or so they think, of "life." This discourages the younger and more sheltered students, especially the young women.

In my opinion the teacher will go astray in such a setting if he is unable to endure silence (even amid a show of flaring hands) and the hostility or uneasiness of the class because of the silence. He must be able to wait until eventually the students learn—as they do—that there is method in his madness; that all students, if neither frightened nor cajoled, have something important to contribute; and that balanced class discussion can draw both on those gifted in textual interpretation and on those who have "been around."[8] In other words, no genuine observation is trivial. But, as teachers well know, students have a very hard time learning that they can learn from one another. Not only do they feel that only the teacher has the real dope, they equally fear that the other students (unless these are elevated by the teacher himself to the role of his unofficial stooges) will have the false dope, will mislead them. At this point the very elusiveness and "dialectic" nature of truth in the social sciences comes to our aid and makes it possible without insincerity to point to the value of students' limited observations and stabs at generalizations.

But it takes a long time—in my experience, from six weeks to six months, depending on the group—before the students will grant this and are not rendered terribly anxious by seemingly unstructured class discussion. In the course of this trial period, I try to "prove" that what each student says is important by the use of the very authority-position and charisma which it is my business eventually to reduce: I must remember or make notes of what each says, draw conclusions from it or suggestions for further inquiry, and question students about it on a later occasion, so that things said are found relevant and fruitful. It sometimes happens that a class will come in the course of time to ignore the teacher in talk *inter se* (they do not come to Chicago knowing each other as a rule); though there will almost always be a few reluctant ones, most will eagerly join—the teacher re-

[8] These remarks should not, however, be taken to mean that I myself find silence easy to take; quite the contrary. I discover in myself some of the same anxieties and concerns about the eddying moods of a group that are brilliantly described by Dr. W. R. Bion in his series of articles, "Experiences in Groups," in the *Journal of Human Relations* (1948–49), I and II.

maining as a kind of umpire, friendly reference librarian, and one to suggest still unexplored issues. Once such a class has found its footing, anxieties about structuring tend to vanish in the experience of active learning and participation in a process which, like life itself, has inevitable ups and downs, boredoms and excitements.

It goes without saying, however, that this very use by the teacher of a student's contribution has its dangers if the student concludes that he must always say something which will be "important." Moreover, I do not feel it is the teacher's function to force students to confront themselves if they do not want to; they must be protected somewhat in their solipsism as in their "prejudices" from too much invasion, well-meant or ill-meant.

Let me turn now to a final example of how class discussion may turn in on itself to develop a theme of the course. It happened recently that a group of students reading Taylor and Mayo realized for the first time that the problems of men versus management in the factory are frequently duplicated in those of pupils versus teacher in the school setting: the same sabotage and slow-down, the same hatred for the rate-buster, the same group effort strenuously to impair productivity, the same manipulation and countermanipulation. From this there flowed a discussion, first of a series, as to the manipulations possibly involved in the course itself: what was the staff after, the lecturers (who talk to the whole course twice a week), the discussion leaders? The usual student question, "What are we supposed to get out of this course?" was turned into: "What do you (the staff) want to make of us?" It soon became evident that many students were likely to project onto the staff, or onto social science as a whole, their misgivings about their own manipulations that are woven into the tissue of daily life in our (and, to a degree, in any) culture.

One student, for instance, suddenly observed that to ask someone "How are you?" or to answer someone else's with a vague "I'm fine" constituted a manipulation, not too different from the teacher's noncommittal acceptance of student views which differed from his own personal ones—not too different, moreover, from the manipulation of a participant-observer in a factory, who must conceal his particular preoccupations and "accept" informants if he wants to continue to get information on disputed issues. This discussion led another student to wonder if it was a good idea for people to become so aware of what they do, whether the course did not do harm in destroying the unself-consciousness of social interaction. Other students agreed; still others pointed out that this "destruction" was actually part of the whole development away from traditional patterns of behavior that had been discussed in the course under such headings as "rationalization" (in Weber's sense), urbanization, and the loss of the magical and religious routines of the "folk society." *Brave New World* itself was thrown into the discussion, with its dialectic between the Savage and the overurbane "Alphas."

Now one might well ask whether such issues might not also be presented to students in a course in philosophy or in the humanities or in a bull-session. Certainly. Social science—its personnel and its works—holds no monopoly on the field of the social. Indeed, works of art constantly come up in our student and staff discussions, seldom as "documents" of a sociological sort (as novels are sometimes used in social science courses) but as efforts to deal with problems of understanding human behavior not different from those that perplexed Veblen or Freud. Nevertheless, I think it fair to say that there is a particularly powerful way of looking at social phenomena which is represented or illustrated in the best work we read in the course: a kind of concerned objectivity, a passionate obedience to canons of evidence, an implicit or explicit membership in the ranks of other disciplined searchers.

Even though our readings have been somewhat reduced in recent years, our course still covers a lot of ground and there is pressure. The students, far from uniting to resist this pressure, tend to intensify it because of the status gained on campus by the more intellectually agile, as well as the usual pressures for post-college security for which good college grades are thought to be insurance premiums. Furthermore, the very high motivation which the course arouses in a great proportion of the students provides another road for justifying the amount of time spent in preparation. Thus students who are "mobile" either in terms of status aspirations or in terms of a desire to expand their intellectual reach are able to fit the great demands of the course on them into their schedule of self-demands. In this way, as well as in other ways, the course enters, at least as a counter, into the students' total campus experience, as well as their later career aims.

PROBLEMS OF A STAFF COURSE

In what has just been said, I have indicated, more by implication than directly, how taxing such teaching is. While there is very great variety among our staff members in handling their discussion groups, the great majority do make an effort to discuss rather than to hold "lecturettes"; there is, moreover, a single examination for the course which is prepared, under staff advice, by the Office of the University Examiner, and inevitably struggles over the form and content of examinations are struggles over the nature of the course and of teaching.

Furthermore, the lectures make considerable demands on the faculty, who must address themselves to their specialty in the light of the progression of the course as a whole, a factor which has led us increasingly to be chary of "outside" lecturers, who, no matter how gifted, are seldom sufficiently familiar with the context. Staff members who know that their colleagues (as well as their scientific superegos) will be listening are often torn between talking to students and talking to other members of the staff; and though this makes for occasional shooting over the students' heads (and I think it does a student no great harm to realize there are levels of discourse which, at any given moment, are beyond him), it does save us from the platform clowning and charismatic appeals that are always among the temptations of academic life.

Typical of our system are the weekly staff meetings at which the problems of the current course are thrashed out, while new course developments are also in the works. It is at these meetings that intellectual compartmentalizations are broken down and the knotty issues of unification are raised and debated, referred to committee, and again debated; new issues arise before the old ones cool. Ordinarily, one staff member takes the responsibility of reporting to the group on some reading (with direct reference to its teachability) or some research of his own (with indirect bearing on the variegated interests of the staff). No rank is pulled, and, since staff members are deeply involved emotionally in their intellectual enterprises, discussions often wax warm; it is perhaps not the best place for the beginner, defensive about lacunae in his erudition and insecure in personal relationships, to start his teaching career; but it is a very good place for those who want to put themselves in a position where they cannot help learning something. Indeed, these weekly meetings may be thought of as a continuing seminar. And while at times all of us would like to be free of colleagues, in our sober moments we realize how invaluable these interchanges are.

To be sure, if the members of the staff spent all their time in teaching or in talk about teaching (and those who visit the College sometimes think that we do!), we

would eventually have more at stake in our courses than would be warranted; research is desirable in a faculty not only to advance knowledge but as a "sublimation" of pedagogic affects. And if, as is beginning to happen, our research can tackle some of the same problems of social science that the course itself trenches on, we may help to integrate not only the field of "culture and personality" but also individual research efforts.

A few sentences should be added here concerning the problem of recruiting a staff for an interdisciplinary course. As such courses have not been going for a long time, we cannot easily find people with the necessary training, but have to pull people from existing disciplines. Moreover, our concern is not only with the integration of approaches among the existing social science disciplines but also with drawing into our group men trained in philosophy and in the humanities who have some interest in social science methods and materials—indeed, we believe that this latter group has a great contribution to make to the study of "culture and personality."

At the beginning and still to a degree, some economists, political scientists, psychologists, historians, and anthropologists feared loss of status in their own professional groups—even loss of "trade-union cards"—if they joined, on a more than desultory basis, a group which taught no graduate students and had no professional standing of its own. Often these seem to me to have been short-run prestige considerations—there is plenty of testimony to the growing interest in such general courses, so much so that they are now increasingly introduced at the graduate level. Nevertheless, I do not think the problem of recruitment will be solved until the procedures hammered out in teaching are also proved fruitful in research, that is, until the same unitary, rather than additive, approach has a chance to show what it can accomplish in orienting new approaches and discoveries.

All this may have given the reader the impression that Social Sciences 2 is mostly a headache. Obviously, I have concentrated on the frontiers where our problems lie and have taken most of the good things for granted. Among these, our students are perhaps our major asset. And, in fact, we have come to take for granted that boys and girls of sixteen and seventeen—the age of many of our students—can readily handle the most searching and complex themes; it is only when visitors come to gasp in astonishment that we are forcibly reminded of the way in which most of the academic profession (let alone society at large) abysmally patronizes the teen-ager.

This patronization is not surprising, for I think there has been a secular advance in the maturity of the young, at least in the better-educated strata, in recent years. Older persons cannot adequately judge these youngsters simply on the basis of their own recollections of late high school or early college years, even if recollections were not distorted by envies and amnesias. And while some may think there were advantages in the slower and often gentler growing up of the collegiate era, it would seem that it is no help to today's young people to treat them as if they were less capable and mature than their times have forced them to become. Here, again, we touch on the self-confirming prediction in social affairs: if we regard students as mature, we assist them to become so—and vice versa.

And surely no teacher will regret having mature students in his course. He wants to be able to share his enthusiasms, his curiosities, subtleties, and erudition. He wants, above all, to be able to afford being honest without martyrdom, whether as against the compulsory pieties of reactionaries off the campus or as

against the sometimes hardly less constricting pieties of reformers on the campus. He wants not to have to waste time on drilling or quizzing students or on spurring their motivation. If, possessed of these advantages, he finds himself faced with novel and unexpected problems—problems of the sort touched on in this article—he can indeed count himself fortunate.

EDUCATION AND A SCIENCE OF HUMAN BEHAVIOR

Mark A. May

THE first half of the twentieth century witnessed important progress toward the development of a science of human behavior. This emerging science promises to provide for education a needed segment in its foundations comparable to that furnished by the physical sciences for engineering. Contributions to this growing science are being made by many investigators at several universities and research centers. This article is a brief account of the contributions made by the Institute of Human Relations in Yale University. The institute, organized in 1929, was one of the first to attempt the development of a co-ordinated program of research in the fields of behavior, bringing together into a unified system certain ideas, data, and methods from several loosely related disciplines.

The goal toward which the institute is moving is a unified science of individual and social behavior that will aid in the understanding of problems involved in the newer applied sciences of human relations, as well as in the older professions of medicine, law, ministry, nursing, and education. The institute is guided by the belief that the better a problem is understood, the more easily it is solved; that organized knowledge produces more adequate understandings than do isolated facts.

THE INSTITUTE OF HUMAN RELATIONS

The organizational plan.—The organizational plan of the institute was designed to encourage and foster co-operative research and teaching and yet preserve traditional academic liberties. An effort was made to fit the institute into the existing structure of Yale University with a minimum of friction or disturbance. Participation in it was entirely voluntary. No attempt was made by administrative officers to coerce any individual or group to modify research plans or to follow a blueprint, even though the work was supported by institute funds. The role of the administration was primarily that of creating working conditions under which the development of a co-ordinated program would be natural and easy.

It was understood from the outset that the institute would not be a school, department, or division of the university but a research center open to all who were interested in its purposes and who were deemed competent by the executive committee to contribute to its work. It was conceived as a *voluntary association* of individuals from various schools and departments of the university. Each held his appointment in a department or school, and all salaries (except those of the junior research staff) were carried on departmental budgets. All promotions were on departmental recommendations.

The research staff.—During the early years the staff of the institute included not only the members of its various sections and laboratories but also all persons in affiliated schools and departments who were devoting whole or part time to research that was regarded as relative to its major objectives. The first bulletin (1931–32) listed the names of one hundred and thirty-one persons. On several

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occasions the executive committee gave consideration to a number of proposals for designating by titles members of the staff. This was never done, primarily because it was believed that the purposes of the institute would be best served by an informal association of individuals among whom there were certain to be wide variations in degree and kind of participation in its activities.

After the first few years it became apparent that effective co-ordination of research was possible only among a relatively small group of individuals. The present program was developed by some thirty or forty individuals who have come mainly from less than a dozen departments or schools. In recent years the institute group has been recruited principally from the departments of psychology, psychiatry, anthropology, and education. The laudable plans of making the institute an informal voluntary association of scientists with its membership fluid was not without its disadvantages, particularly in the early years. Feelings of identification with the institute were slow to develop except in the case of some who were brought to Yale for full-time research and received courtesy appointments in departments at the request of the administrative officers of the institute. Regular teaching members of departments who came in on departmental invitation and recommendation but who received research funds from the institute were inclined to feel more closely identified with their departments than with the institute. The lines between departmental and institute interests were never sharply drawn. Many individuals were quite uncertain as to whether or not they belonged to the institute group and whether to mention its name on their publications.

These disadvantages were in some measure responsible for the delay in getting started but never seemed serious enough to offset the value inherent in the original plan of organization. In the years that followed, the development of a more co-ordinated program provided the common ground for a group spirit on the part of those who were contributing to it.

Financial support.—The main financial support has come from the Rockefeller Foundation. The initial grant, made in 1929, came in part from the Laura Spelman Memorial, which, before it was merged with the Rockefeller Foundation, set aside $1,500,000 for the continued support, for a ten-year period, of certain research activities at Yale, including the Institute of Psychology, the Clinic of Child Development, and a new program of research in the social sciences. The Rockefeller Foundation supplemented this grant with $1,000,000 for psychiatry ($100,000 a year for ten years) and with $1,500,000 for the institute building. Of the total sums appropriated, $2,500,000 was available for operating expenses over a period of ten years. Yale's contribution from other sources, including maintenance of the building, salaries of part of the research personnel, and other research funds, amounted to about $100,000 a year.

During the first ten years the departments of psychiatry and child development were financed wholly from institute funds, and those of psychology, anthropology, and other social sciences in considerable part. The total budget of the institute was $250,000 a year, of which approximately $100,000 was a liquid research fund.

At the end of the first ten years certain administrative changes were made, whereby the budget of the institute was wholly that of a liquid research fund. It was this part of the total that was renewed by the Rockefeller Foundation in 1938, by a lump-sum grant of $700,000, which, with interest on unexpended balances, gave a liquid research fund of about $80,000 a year for a second ten-year period. The university agreed to supplement this fund with $20,000 a year from other sources.

From time to time during the twenty-year period additional grants have been received for special projects. The Josiah

Macy, Jr., Foundation gave $17,000 for the salary and research expenses of a child analyst for three years; the General Education Board sent to the institute a team of five research fellows to work on methods of studying adolescent development for three years, at a total cost to the board of $35,000; the Viking Fund gave $3,000 for an anthropological field study of child rearing and recently another $10,000 for a study of neurosis among primitive people; the Motion Picture Association of America and Teaching Film Custodians gave $25,000 a year for three years for experimental studies of the educational effectiveness of teaching films; and Thomas J. Watson gave $20,000 for the year 1949–50 to be used in the study of human relations in industry. During the war the institute received $81,700 from the Coordinator of Inter-American Affairs for the preparation of a "Strategic Index of Latin America."

Administration.—The affairs of the institute are administered by a director and an executive committee. The main function of the executive committee has been to encourage and promote research and educational activities that are deemed to be in line with the purposes of the institute. In the early years it approved the budgets of departments and divisions supported by the Rockefeller grants, considered research proposals from members of the faculties, and recommended the appointments of the research staff. In later years its functions have been advisory to the director.

Prior to 1935 the funds of the institute had been allocated annually to the departments and divisions for which they were designated when the grants were received. The heads of each of these departments distributed the funds (which were not committed to the payment of salaries of individuals holding tenure appointments) to the directors of laboratories and of research projects. The programs to which the funds were thus committed were of a continuing character, and the salaries to which they were committed were continuous. Thus it came about that the entire funds of the institute were committed either to departments or to individuals. By 1935 there was no liquid research fund for the support of new projects of an interdepartmental character. This situation was detrimental to the main plan of making the institute a voluntary association of scientists. There were no funds for the support of work of individuals who later wished to join the group or for the support of new projects that might have been more in line with the purposes of the institute than many of those that were receiving support.

In 1935 steps were taken to change this situation and to clarify relations between the institute and university departments. First, a division was made between the funds of the institute which were committed to the payment of salaries in various departments and those which were used for service and equipment expense. The salary budgets of the department of psychiatry and the Clinic of Child Development were transferred to the School of Medicine. The salary budgets in psychology and the social sciences were transferred to the Graduate School. A liquid research fund was set aside for the support of interdisciplinary projects, to be administered by the institute. This gave the institute a working fund which was not allocated annually on a fixed basis to divisions, departments, or individuals. It was used to support projects which appeared to be most promising for the achievement of the main purpose of the institute—that of developing a unified science of behavior and human relations.

Decisions concerning budgetary allocations are made by the director in consultation with members of the research group. At present the main items on the institute budget are: salaries of assistants, including the full-time work of secretarial research assistants and part-time graduate students; parts of the salaries of some members of the professional group; full salaries of research assistants who do no teaching; the purchase, maintenance, and

care of experimental animals; laboratory equipment and supplies; office supplies and telephones; expenses incidental to preparing manuscripts for publication; an annual contribution to the Medical School Library; and the administrative expenses of the director's office. All salaries of the institute group, except as indicated above, are paid from general university funds and are carried on departmental budgets.

An effort has been made from the beginning to keep the administrative machinery of the institute simple and informal. There is no line of command or hierarchy of committees and boards. Each member of the voluntary association of investigators plans and directs his own research. In various ways the director attempts to keep each member of the group acquainted with the current work of his colleagues; his role as director is mainly that of an expediter and co-ordinator.

Misunderstandings of purpose.—When the institute was organized, it was not possible to foresee how its objectives would be reached, if at all. An enterprise of its scope and magnitude, with no experience or precedent to guide it, was almost certain to require, as one observer said, "a few years and a few mistakes to find the right road." Actually, it took six or seven years to discover an attainable goal that lies in the right direction, i.e., a unified basic science of behavior, and to find that it can be reached by the development of a scientific theory.

Although the purposes of the institute were stated clearly by its founders, yet its activities seemed so unrelated to its aims that considerable uncertainty arose as to what it was really attempting to accomplish. According to the statements of purpose made by President Angell, the institute was organized to achieve "a better understanding of human nature and the social order ... to correlate knowledge and coordinate techniques in related fields that greater progress may be made in the understanding of human life from the biological, psychological, and sociological viewpoints."

This conception of purpose which stresses the understanding of behavior is squarely in line with that of pure science. Yet it was widely misunderstood. One source of confusion was newspaper publicity, occasioned in part by the fact that shortly after the institute was organized the university entered a fund-raising campaign for the medical center in which the institute was located and with which it was affiliated. This center was called the "Human Welfare Group." The fund-raising publicity stressed the practical potentialities of interdisciplinary research on problems of human welfare. Many people both within and without the university were led to think of the institute as a high-powered social-service station.

This misconception of the institute's major purpose and function was reinforced by the fact that it was operating a psychiatric and a child-guidance clinic and sponsoring major research projects on juvenile delinquency, unemployment, the sociological structure of the New Haven community, business failures, the administration of justice, the reactions of textile workers to technological changes, the adaptation of Italian immigrants to the conditions of life in New Haven, and the social and economic consequences of automobile accidents. The data for most of these studies were obtained locally, which brought research directors and staff members in daily contact with social agencies, courts, and other community groups. The belief that the institute was primarily a social-service organization was unfortunate because it led eventually to the disappointment of many people and to the disgruntlement of a few who had great expectations that in a few years the institute would find better ways of reducing the incidence of juvenile delinquency and mental disease, of preventing divorce and family discord, of reducing the demands on the Community Chest, and so on.

This disappointment might have been prevented, in some measure, had more publicity been given to the long and ar-

duous road that pure science must travel before its results are useful in practical affairs. The emphasis that President Angell had given to the need for a better understanding of human nature and the social order from the standpoint of basic biological and social science was not featured in the headlines. This is understandable in view of the fact that most American laymen (and some scientists) are inclined to look with suspicion, if not disdain, on pure science the practical applicability of which is not apparent. This is illustrated by a story told about the scientist Faraday, who, after giving a demonstration of electric currents to Prime Minister Gladstone, was asked, "What use can be made of it?" Faraday replied, "Some day the government will tax it."

Scientists have found that progress in the discovery of basic laws and in the development of scientific theories is greatest when research projects are selected and planned from the standpoint of testing a hypothesis or verifying a principle and not from that of the possible practical utility of the results. It often happens, however, that research which appears to be utterly useless turns out to have great practical value.

Another source of confusion, this time on the part of the staff, stemmed from the apparent conflict between the announcement that the institute proposed to reach its goal of "a better understanding of human nature and the social order" by the "correlation of knowledge and the coordination of techniques" in the biological, psychological, and social fields, and the fact that there was included in the institute from the very beginning such a wide diversity of unrelated research activities. This diversity was due, partly but not wholly, to the fact that when the institute was organized it was understood that the research then in progress by its various divisions would proceed as before. The main reason, however, for including under the tent of the institute all the research at Yale which pertained to the study of man was the hope that out of it would come, from some quarters, the beginnings of a truly integrated program.

Attempts to find common ground.—The task of achieving a co-ordinated program was left to the initiative of the staff. Administrative officers attempted to create conditions favorable to interdisciplinary research and to keep reminding the heads of departments, clinics, and units of the institute's objectives. One such opportunity was the maintenance of a staff dining-room, known as the "Blue Room," where lunch was served on Mondays through Fridays during the school year and where individuals and groups from all parts of the university could meet and talk shop. It was hoped that the Blue Room would provide opportunities for individuals from different departments to become acquainted with, and to learn something about, the interests and work of others. Many individuals, whose paths might not otherwise have crossed, became acquainted with one another. It was only one factor, however, and perhaps not a very significant one, in bringing about the integration which was later achieved. The senior staff of the institute, i.e., the heads of research divisions and units, held monthly dinner meetings in the Blue Room for two years (1932 and 1933). The purpose of these meetings was to acquaint one another with current research, in the hope that suggestions and opportunities for interdisciplinary projects would emerge or that common ground for cooperative research would be discovered. It is an interesting fact that this group was composed of about twenty eminent scientists, most of whom had won reputations of distinction in their respective fields. One member of the group pointed out that most of them were too old and too well established in their fields to be expected to change their interests and habits of work. The institute should therefore look to its younger men for the development of an integrated program. This proved to be excellent advice. The inte-

gration that was later achieved was developed mainly by younger men.

Here is revealed one of the main barriers to interdisciplinary research that attempts to go beyond the familiar pattern of collaboration between two scientists. The majority of eminent men of science, the ones who often become heads of departments and directors of research units, have won distinction by specialized and independent work in relatively narrow segments of their respective fields. Scientists, like most people, do the things they can do best and from which they derive the greatest satisfactions. It is not surprising, therefore, that most of the members of the senior staff of the institute kept on doing the kinds of research for which they had been so well rewarded and in which they had acquired great skill.

TOWARD A CORRELATION OF KNOWLEDGE

The interdisciplinary work of the institute during the first few years was mainly at the level of co-ordinating techniques. Collaborative research involving the cooperation of two or more persons from different fields was an established pattern —particularly in the medical sciences. Clinicians frequently work with laboratory scientists. The co-ordination of data obtained by several techniques is common practice in medical diagnosis.

The conception of interdisciplinary research most prevalent during the early years of the institute was that of a team of scientists engaged in the study of a common problem. Some of the first projects were organized in accordance with this notion. The staff of the delinquency study, for example, was composed of psychoanalysts, psychologists, and social workers. Other projects were supervised by advisory committees, each composed of individuals representing several disciplines.

The organization of teams of specialists and the development of new techniques for their use are no doubt useful procedures and often necessary, but mainly *after* a field has been cultivated to a point where the problems requiring a multiscience approach are clearly defined. In general, they are most successful at the level of applied science and follow, rather than precede, the development of scientific theory.

The interdisciplinary program of the institute was developed by a relatively small group, composed mainly of younger men, who, in a series of seminars and informal conferences, worked out a comprehensive system of ideas which constitutes the basic framework. This required a considerable amount of mutual adult education whereby each member learned the essential facts and concepts of two or more of the relevant fields of inquiry.

The outcome has been the co-ordination into a single scientific system of four hitherto loosely related bodies of facts and principles that pertain to a comprehensive understanding of behavior. The four fit together so that each supports and depends on the other three. The four bodies of facts and principles pertain to *learning, society, culture,* and *personality development.* They come mainly from the fields of experimental psychology, sociology, cultural anthropology, and psychoanalysis.

Learning.—In the first place, the psychology of learning is essential to the understanding of behavior because most of the factors on which human behavior depends (except that of very young children) are acquired. These are habits, motives, attitudes, beliefs, values, etc. Man's innate equipment of instincts and reflexes is very limited and quite inadequate for his survival. He must depend, therefore, on his learning capacities for the acquisition of a behavioral equipment that is adequate for the conditions of life as he finds them.

All mammals and many other species of animals are equipped with innate learning capacities. The learning mechanisms of the higher mammals, like apes, dogs, cats, guinea pigs, rats, and mice, are quite similar to those of man. It is possible,

therefore, to use such animals as laboratory subjects in the investigation of the learning processes. The most obvious difference between man and other mammals, in respect to learning, is man's capacity to invent and learn languages. Basic to this capacity, however, are certain "symbolic processes," which are also found, though less well developed, in other species.

In their attempts to understand the nature of innate mechanisms of learning, how they are modified, and how they influence behavior, psychologists have developed a number of scientific theories. The theory that the institute group has found most useful, i.e., the one that fits best not only the facts of experimental psychology but also those needed from other disciplines, has been developed under the leadership of Professor C. L. Hull. It stems historically from the works of Pavlov and others on conditioning, E. L. Thorndike on trial-and-error learning, and that of John Dewey and J. R. Angell on "functional behaviorism." It has been influenced by facts from current work in experimental psychology produced elsewhere as well as at Yale and often by facts that have been used in support of rival theories. The outcome thus far has been the development of a scientific theory of behavior and learning that is rigorously logical and, well supported by facts, to some degree quantitative. As it now stands, Hull's theory contains eighteen basic principles (called "postulates") which pertain to the innate and acquired mechanism of learning and behavior. Most of these have been well verified by experiment, and some have been stated as equations. From it have stemmed two other systems—one on rote learning and one on conflict and displacement, developed by Neal Miller and others.

Social structure.—A scientific theory of learning and behavior constitutes but one part of the totality of facts and principles necessary for a comprehensive understanding of human behavior. Two additional parts come from the fields of cultural anthropology and sociology and pertain to the social life of man. Many species of animals have hereditary mechanisms that operate to bring individuals together in aggregates, groups, herds, and organized societies. Close physical proximity is useful for reproduction, nutrition, and defense against enemies. In some species, notably ants, bees, and termites, hereditary social behavior is highly structured, very rigid, and quite similar for all colonies of the same species.

The hereditary basis of man's social behavior, whatever it may be, is certainly not nearly so rigid and uniform as that of some other species. Although the existing evidence concerning the life of the earliest and most primitive of men indicates that they, like the great apes, lived in families or bands, yet comparative studies of tribes well known to anthropologists show clearly a great diversity of social organization even between tribes which are of the same racial stock and speak the same language. This evidence points to the conclusion that the various forms of social life found in human society have undoubtedly been learned.

Human societies differ in their structural organizations not because they have different innate mechanisms of learning but because the environmental and cultural conditions are different. Man's needs for food, water, and protection against injury and destruction may be met in a variety of ways and with many different forms of social organization, even in the same type of environment. It is not surprising that different groups of people have discovered and perpetuated different ways of social life.

Organized social life requires that the individual members of a society play different roles and have different assignments. Each one fits, or is supposed to fit, more or less smoothly into the organizational structure. To understand the behavior of any individual, it is necessary to know how the society of which he is a part is organized.

Culture.—Within certain limits imposed by heredity, the innate mechanisms of learning are neutral in respect to the habits, motives, and beliefs that an individual may acquire. These mechanisms are not biased in favor of any particular language, moral code, or custom. The behavioral equipment which an individual actually acquires depends primarily on the *conditions* under which the laws of learning operate. In laboratory experiments the conditions of learning are, to a large degree, determined by the experimenter: by depriving the animal of either food or water, he determines whether the drive will be hunger or thirst; he can decide whether the significant cue which the animal will learn to notice is the flashing of a light or the sounding of a buzzer; he can rig the apparatus so that the "correct" response will be that of pulling a chain, pressing a lever, turning a button, or any other act which he knows is within the animal's repertoire of movements. The reward can be anything that will reduce the drive (or, perhaps more generally, anything that will produce within the animal a "satisfying state of affairs," the exact nature of which is not yet known). Thus, in respect to food-getting, laboratory animals can be trained to become lever-pressers, chain-pullers, button-turners, or maze-solving experts; they can learn to turn a button to one cue and pull a chain to another; they can learn to follow a leader animal through a maze.

One of the important conditions of learning is that the environment must be lawful. The apparatus must work and deliver the food when the lever is pressed, at least on most of the trials. The innate machinery of learning is so flexible that, unless the "correct" response (or sequence of responses) is followed rather consistently by reward, it will be superseded by some other response that brings a greater reward.

The social-cultural maze.—The maze that a human must learn is the organizational structure of his society and the physical environment in which it is located. The conditions of learning are set partly by the maze and partly by "teachers," i.e., parents, associates, and, in our society, schoolteachers. The "teachers" correspond to the experimenter in the laboratory, except that they do not always construct the apparatus. They do, however, exercise considerable control over the drives, cues, responses, and rewards, especially in the case of young children. These essential conditions of learning are manipulated according to the habits, ideas, motives, and beliefs of the "teachers." Part of this teaching is without any intent on the part of the teacher; but a considerable part of it is deliberately designed to train the child in the particular habits, motives, and values that "fit" him for the roles which he then plays and which he will occupy in the future. An important part of this learning involves skill in solving problems of social adjustment.

SCIENTIFIC THEORY OF SOCIETY AND CULTURE

The social environment, like the physical one, is lawful. First, it is dependable. People generally can be depended upon to deliver rewards or punishments and to act according to the cultural specifications for their roles, though always with a margin of uncertainty and unpredictability. The same is true of the physical environment. But society and culture are lawful also in the sense that their parts are interdependent and that changes can be predicted.

Many theories have been advanced by anthropologists, sociologists, and social psychologists to account for facts concerning the origin and development of societies and their cultures and the wide diversities between them the world over, as well as their striking similarities. However, like many theories of the physical world, some of these are untenable, but most are valid for limited ranges of facts. The institute group has developed a scientific theory which, in so far as it has

been tested, does account for most of the facts. It may be called a *learning theory* of society and culture. Its basic postulates are the innate and acquired *principles* and the *conditions* of learning and behavior.

From these basic postulates, theoretical deductions can be made regarding the particular differences and likenesses one would expect to find between cultures and societies and about cultural change. An example is found in George P. Murdock's *Social Structure*.[1] The greater the restrictions imposed by the environment and by human organisms on the range of responses that *can be made* to satisfy a need or condition, the greater will be the similarities of cultures in this respect. For example, the possibilities of the lines of descent are limited to three rules: patrilineal, matrilineal, and bilateral. Every society must have one or another or some combination of the three. But the number of phonetic elements that humans can utter and the combinations of them are so great that the number of possible languages is almost infinite. Hence one would expect to find greater cultural diversity in respect to language than in respect to rules of descent. The facts are just as predicted. The two hundred and fifty cultures in Murdock's study have either *one* of the three rules of descent or a combination of them. But among these same societies there are two hundred and fifty different languages and approximately fifty distinct linguistic stocks.

The second example is as follows: The social structure in which the greatest number of innate and acquired needs are met would be expected to be the most prevalent and to serve as a model for other structures. The *family* is a structure in which the innate drives of hunger, thirst, sex, pain, fatigue, and many acquired drives are reduced. Hence it should be a structure found in many societies. It is found in all. Furthermore, its structure is copied by government, school, church, and other social institutions, as the theory would lead one to expect.

Numerous additional examples could be given of the predictive and integrative power of the institute's theory of culture and social structure. Like all other scientific theories, it is subject to modification. If its predictions do not accord with new facts, as they are discovered by anthropological field work and by analyses of cultures and societies, it must then be revised.

Personality development.—This brings us to the fourth and final set of facts and theories needed for a comprehensive science of behavior—those that pertain to the development of personality and the formation of character. These facts and theories have been developed mainly by psychoanalysts and social psychologists. The fact that the human infant is quite helpless and dependent on others for his survival, plus the fact that, as he matures, his innate behavior tendencies do not match the requirements of his culture, plus also the fact that his parents and the members of his family are, in most societies, expected to bring him up according to the standards of the society—all these add up to the result that his biological drives and urges are curbed and molded to square with the habits, beliefs, and values which are deemed suitable for an individual of his age, sex, and station in life. Freud and other psychoanalysts have shown that this process of socialization or domestication of the child sets up inner conflicts, repressions, and other unconscious impulses that constitute the behavior tendencies forming the hard core of adult personality.

Among the aspects of behavior that the individual acquires under the tuition of his family and community are not only skills, routines, and preferences but also respect for, and observation of, the strongly felt commandments which Sumner called the "mores." Under the influence of the mores as expressed in the

[1] (New York: Macmillan Co., 1949), pp. 113–83.

words and behavior of his fellows, the child internalizes them (i.e., learns them), and the resulting aspect of his internal behavior is variously called "conscience," "censor," or "superego." Conscience is culture (or at least an important segment of it) channelized through social structure and controlling behavior from *within*, in contrast to social sanctions, law, and order which control behavior from without. Thus personality and character are acquired by learning under the conditions prescribed by culture and social structure.

Personality is here regarded as the organization of the individual's behavioral equipment. It is important for the understanding of behavior because the use that a person can make of it depends on how it is organized. A father, for example, may be unable to behave like a father in respect to his son not because he lacks the necessary social skills but because some essential parts of them are inhibited by inner conflicts.

Dynamics of adjustment and maladjustment.—One of the great problems of social life is how to engineer the processes of child growth and social learning so that the resulting personalities and characters of adults will be such as to make the social and cultural apparatus work for the good of all its members. Stated negatively, the problem is to discover how to avoid developing within the personalities of individuals the antagonisms, hostilities, fears, and aggressive habits that are antisocial and that are manifested in criminality, suicide, divorce, revolution, and insanity. If these tendencies cannot be wholly prevented, then how can they be overridden by those that bind people together?

Psychoanalytic theory of personality development provides one answer, and perhaps the best available answer to this question. It was designed by Freud primarily as a theory of maladjustment, i.e., of neurosis, but it is pertinent to the whole range of normal adjustment as well. Several members of the institute have studied it thoroughly, and some, to understand it better, have received training analyses. Progress has been made in systematizing its complicated ideas and relating them to culture, social structure, and learning. The problem is to give this theory scientific precision without robbing it of its profound vitality.

An example of how this has been done is found in a recent book by John Dollard and Neal Miller on *Personality and Psychotherapy.*[2] One of the great contributions of Freud to the understanding of behavior is his discovery that repressed impulses and behavior tendencies exert powerful influences on conduct. Being repressed means being out of conscious control. The behavior that is motivated by these tendencies, is, therefore, often quite irrational and unbecoming to the position of the individual in the social order. It is commonly called "neurotic behavior." Freud and other psychoanalysts have long believed that neuroses are cured when the repressed and therefore unconscious conflicts of the patients are made conscious. This is achieved by psychoanalytic interviews.

Dollard and Miller have clarified this process by relating it to learning theory, society, and culture. They have worked out in detail the role of verbal processes in the normal use of the mind in the resolution of inner conflicts. They have shown how neuroses block or interfere with the normal use of the verbal processes and how psychotherapy overcomes this interference. Psychotherapy provides new conditions which result in the unlearning of the neurosis.

In their detailed analysis of the social-cultural conditions under which neuroses are learned and unlearned, Dollard and Miller have made a promising beginning toward a scientific theory that should provide a rational guide (analogous to the role of bacteriology in the study and prevention of contagious diseases) for further research and practice in the prevention and treatment of mental disorders.

The interdependence of learning, society, culture, and personality.—By virtue

[2] New York: McGraw-Hill Book Co., 1950.

of his ability to learn and particularly to develop and learn languages, man has created numerous societies and cultures which, in turn, re-create him because they provide the main conditions of further learning. The development of the character and personality of each individual is powerfully influenced by the conscious and unconscious conflicts between needs (organic and acquired) for society and culture and the hostile tendencies that are engendered toward them. The conflicts between culture and basic drives that produce the hard core of personality result from the efforts to bring the child's behavior into conformity not only with family life but with the social class, caste, and occupational system of the social order.

The structure of a society depends not only on its culture, as indicated above, but also on how the personalities of its members fit the roles assigned to them or achieved by them. Although there is considerable leeway in the rules that define the conduct and attitudes regarded as essential for each of the manifold positions that members of a society occupy, yet when a number of individuals are unable to meet the cultural specifications for a particular role, a change may result in the culture in respect to its organizational structure. Fitting the "pegs" (i.e., the personal ties) into the "holes" (i.e., the positions of organized society) is always a matter of shaping and reshaping each to fit the other.

All four of these bodies of knowledge—learning, personality, culture, and social structure—must inevitably fit together into a single unified science of human behavior; and no study of man's behavior can be complete without taking all of them into account. They constitute a dynamical interacting system. Although this co-operative, interdisciplinary achievement has been accomplished at the level of pure science, i.e., by the development and use of scientific theory, and even though only a beginning has been made toward the goal of the institute, yet many practical implications and potentialities of its work are already apparent.

For education it provides a rational basis for the resolution of basic issues and the solution of some fundamental problems. The learning process, for example, which hitherto has been of interest to educators mainly in connection with the acquisition of knowledge and manual skills, now becomes more clearly related to the conditions of learning set by patterns of culture that characterize the social class or caste of parents and teachers and that of the community as a whole. Problems of guidance and adjustment are seen more clearly as instances of unlearning and relearning. New light is thrown on the issue of how to provide education for "life-adjustment" and, at the same time, give a measure of "cultural" or liberal arts training.

What has been said above concerning the use of scientific theory for the integration of the four bodies of knowledge—learning, society, culture, and personality—may now be summarized. Several important innate and acquired mechanisms of learning and behavior have been discovered. They are stated as primary laws or principles. These laws are quantitative statements of relations between antecedent conditions and behavioral consequences that occur both within the organism and in its manifest behavior. The essential conditions of learning are drive, cue, response, and reward.

The learning machinery is largely neutral. What an organism actually learns depends on the rewarded responses it makes in the presence of particular cues and drives. Any response an animal can make in a situation can become connected to a stimulus or stimulus pattern to which the animal is sensitive. The habits and motives that an organism acquires can be controlled by controlling the essential conditions of learning.

The maze or apparatus in which most human learning occurs is a physical and social environment which has an organized structure and a culture. The surrogates of this culture control the conditions

of learning, particularly in respect to the growing child. The child, therefore, inevitably learns not only the language of his parents and fellows but also their ways of life and their system of values.

The social environment is lawful in both its structure and its culture, just as the physical environment with which it is entwined is lawful. Its laws and principles are based on the principles and the conditions of social behavior and learning.

The ties that bind members of a society together and those that tend to force them apart are found in the organizational structures of their personalities. Likewise, the satisfactions that an individual can derive from social life depend on how well his personality fits the roles assigned to him or achieved by him. Thus learning, society, and culture come together in personality development and in the resulting dynamics of adjustments and maladjustments.

The discovery that a wide range of facts and theories about internal mechanisms of learning and behavior, diversity and change in societies and cultures, the development of personality and character, and the dynamics of adjustment and maladjustment can be ordered into a single scientific system composed of a mutually interdependent set of principles is the major achievement of the institute. It is an interdisciplinary accomplishment at the level of pure science and establishes a foundation for better understanding of the essential factors involved in a wide range of practical problems of human relations. The scientific work of the next twenty years in the field of human behavior may confirm the reasonable belief that a new era in the social sciences has been introduced.

GRADUATE TRAINING IN SOCIAL RELATIONS AT HARVARD

Talcott Parsons

THE Department of Social Relations in Harvard University was officially established by vote of the Faculty of Arts and Sciences in January, 1946, combining instruction in the field of sociology with that part of psychology concerned with the individual in the social system and that part of anthropology concerned with the direct relations of culture to social behavior. The department was given the usual powers and responsibilities of the university's departments, including the administration of programs for both undergraduate and graduate degrees. It established a single program of concentration in social relations for the Bachelor's degree with opportunities for specialization within the field which might or might not coincide with interests in the constituent discipline. On the graduate level the department was given the responsibility of administering the A.M. and Ph.D. degrees in the four subject fields of sociology, social anthropology, social psychology, and clinical psychology. Coincidental with the opening of the department was the establishment of the Laboratory of Social Relations, a research organization empowered to formulate and promote research programs and to receive and administer research funds for the promotion of research in the area.

Like any comparable venture, the Department of Social Relations has origins both in the intellectual and in the organizational and social world, both locally and more generally. Intellectually it is a product of a complicated process of convergent intellectual development, involving elements of the major traditions of all these fields. In psychology the study of animal behavior, particularly under the aegis of behavioristic methods, had long been relatively separate from the study of personality and its adjustments and maladjustments in the social relationships of the individual. However, within the last generation these two great traditions of psychology have begun to merge on an ever increasing scale. While the specific developments of behavior psychology have centered largely in animal research laboratories and those of personality psychology, to a considerable extent in the therapeutic aspect of psychological medicine and in clinical studies more generally, both have more and more contributed to the major preoccupations of theoretical psychology, and even research interests in the two types of fields have begun to converge. The Psychological Clinic at Harvard had been a unique research center in the field of personality problems on a broad basis of psychoanalytic and clinical theory. It has contributed greatly to methods of research and investigation in this field. Besides this more clinical approach to personality, such interests as those of G. W. Allport in the psychology of personality rooted in the deeper historical tradition of William James and many other theorists have been important.

A new era in the theoretical development of sociology had been introduced by the great European theorists, Émile Durkheim and Max Weber. These had con-

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verged with indigenous American traditions of theory and research, such as those of Sumner, Cooley, Mead, Thomas, and Park, and with the statistical interests developed and carried on by such scholars as Ogburn. Finally, the whole field of social anthropology had undergone a tremendous development. Not only had it increased our substantive knowledge of comparative cultures, but it had tremendously refined its theoretical analysis of culture and its field methods of research and had elevated its standards of precision and clarity. These different intellectual traditions, though in certain respects largely separate, have tended to overlap a good deal, and to a considerable extent two or more of them have with increasing frequency been found in the same skull. Thus the time seemed ripe in intellectual terms for an attempt to bring them more closely together on a basis of specific academic organization.

Locally the most important single circumstance was the presence at Harvard of a group of relatively young scholars representing all these fields and certain ones connected with them, who had interests in exploring the ramifications of their respective disciplines in a variety of directions. The first time that certain of these people came together was in the attempt to organize a program of concentration for undergraduates under the title of "Concentration in the Area of Social Science." The original group of tutors in this field included, among the present members of the Department of Social Relations, Clyde Kluckhohn and the present author. It also included J. T. Dunlop in economics, M. P. Gilmore in history, O. H. Taylor in economics, and O. H. Mowrer in educational psychology. At one stage of its work, this group produced an attempted general statement of a theoretical approach to the field under the title, "Toward a Common Language for the Area of Social Science."[1] The teaching experiment was a casualty of World War II.

However, during the summer of 1943, at the invitation of the dean of the Faculty of Arts and Sciences, Messrs. Allport, Kluckholn, Henry A. Murray, Mowrer, and the present author held a series of conferences concerning the possibilities of organization of a graduate training program covering essentially the area which has come to be that of the present department. The report of these conferences, though never published, formed a focus for informal discussion within the faculty. The approaching end of the war subsequently presented an unusual opportunity for a new organizational development; at the instance of the departments of sociology, anthropology, and psychology a committee[2] representing all three departments composed the motions to the faculty which resulted in the establishment of the Department of Social Relations.

THE PROGRAM FOR HIGHER DEGREES

For the administration of its graduate program the department has set up a Committee on Higher Degrees, of which Professor Allport has functioned as chairman since the second year of the department's existence. Graduate enrolment is at approximately one hundred and fifty in its four fields. (Because of the special facilities required for instruction in that field, the number of new students in clinical psychology is specifically limited to ten each year.) Admissions in the other three fields are more flexible but are now stabilized at a level which roughly permits only replacement of those who have finished their degree programs or who have left for other reasons.

The graduate program is based on the view that the recipient of a higher degree in social relations, particularly the

[1] This document, though circulated in mimeographed form, was never published as a whole. Part of it appeared as chap. iii of Talcott Parsons, *Essays in Sociological Theory* (Glencoe, Ill.: Free Press, 1949).

[2] The committee consisted of G. W. Allport, E. G. Boring, Donald Scott, A. M. Tozzer, C. C. Zimmerman, and the present author as chairman.

Ph.D., should be both a competent specialist in his degree field and a competent generalist in the sense of having a good general working knowledge both of the theory and of the common techniques of the whole field of social relations as defined above. Because of the newness of the experiment the department has been frankly pragmatic in its approach to attaining the best methods of achieving these goals. We have been consistent in maintaining as a general requirement that every graduate student should show evidence of competence in the general common foundation of the field as a whole. We did this in the first instance through setting up a qualifying examination, which would be taken by candidates for degrees in all four fields. This qualifying examination was by no means an unmitigated success. Careful study convinced the department that the primary reason for the difficulties was that students came with too uneven instructional foundations in the major general aspects of the field. As a result of this, starting with the autumn of 1949, the department introduced a new basis for its qualifying requirements. It established four courses, each meant to cover the major theoretical orientations of one of the four subdisciplines which enter into the department. The final examinations in each of these courses are now the qualifying examinations. Every candidate for a higher degree is required to take all four of these examinations. He is not, however, required to take the course in question. If, for example, he has had advanced work in sociology before entering the graduate school, it would be superfluous for him to do all the work of this course, though he might be an auditor for parts of it. He can, however, demonstrate through the examination that he has a general mastery of sociological theory; similarly with the other three fields.

The problem of common techniques of research is more difficult. From the inception of the department there has been a general requirement in statistics, although no other step has been taken to enforce a common mastery of specific empirical techniques. There is, however, a policy of strong encouragement of candidates to master these techniques including those mainly outside of the specific degree fields in which they are concentrating. Thus a number of students in sociology and social anthropology have devoted a great deal of time to the acquisition of projective techniques, through actually working in the same training seminars with the students in clinical psychology. Similarly, we have encouraged candidates in the psychological branches of the department to enrol in a course in field methods in sociological research, and in 1950–51 we began a new training course in field methods of research in social psychology, expecting others than social psychologists to take advantage of it. The ideal very definitely is that every student should have both a working knowledge of the theory and fundamental concepts of the field as a whole and a familiarity at least with the principal research techniques which are operative in all the branches of the field.

The problems of theoretical integration have greatly concerned the department. For the first three years the great majority of first-year graduate students were enrolled in a general pro-seminar in problems and concepts of the total field. Although we did not feel that these pro-seminars were an unqualified failure, the department, broadly speaking, concluded that, in view of the state of the subjects, preparation and background was too uneven to justify their continuance on the old basis. It was this conclusion along with the problem of the qualifying examination as such which led to the decision to institute a new type of qualifying requirement. At the same time this situation was one of the factors which stimulated members of the department to undertake a general review of the theoretical foundations of its field. To implement this, the present author was given leave of absence for the fall term of 1949; Edward C. Tolman, of the University of California,

and Edward Shils, of the University of Chicago, were invited to Harvard, and a long series of discussions of general theoretical matters was held. As a result of this general project, a statement entitled "Some Fundamental Categories of a Theory of Action" has been formulated. This general statement is to be the Introduction to a volume to be entitled "Toward a General Theory of Action," which incorporates the most important results of this theoretical stock-taking carried on within the department. It is hoped that making this new integrated analysis of the general theoretical problems available in print will greatly aid in focusing the thinking not only of the faculty members of the department but of graduate students. It was most gratifying that such a group as the signatories of the general statement referred to, which included six senior members of the department, were able to reach full agreement on such a complicated and substantively elaborated document.

PROGRAMS FOR SPECIAL DEGREE FIELDS

The general emphasis of the department is on placing fulfilment of the qualifying requirement first in time, then leaving the student free to pursue his special degree field within the area of social relations. In terms of formal academic provision, the fulfilment of this requirement culminates in the special examination, which is seldom taken before the end of the second year of residence. This is a searching examination, successful completion of which is conceived to certify a high level of professional competence in the field in question. It includes the general theory of the subject, its literature and history, the mastery of one or more special fields, and competence in the principal research techniques which are currently being used in the field. In all but one of the four fields, both written and oral examinations are combined for this purpose.

When, finally, the graduate student has acquired both a sufficient general background in social relations as a whole and a mastery of the broad lines of his degree field, it is the policy of the department to plunge him into actual apprenticeship in research at the earliest possible stage. Obviously, the interest in the development of research for its own sake is of fundamental importance. But it was an important consideration, in pressing for the establishment of such a research organization as the Laboratory of Social Relations, that it was essential to have an active going research program as an environment for the purpose of graduate training. To aid in the integration of the work of the laboratory and the graduate training program, a series of research seminars has been established. These are deliberately organized about going research programs. Students in these seminars are expected to take active part in the research project, to conduct experiments on their own responsibility, to do interviewing in the field, to design questionnaires, to code them and undertake parts of the actual statistical analysis themselves. Examples of these have been Professor Allport's seminar in group prejudice and conflict; the seminar in the theory of perception by Professors Bruner, Solomon, and visitors; the seminar in measurement in social psychology with Professors S. A. Stouffer and Mosteller, and such visitors as Paul Lazarsfeld, of Columbia University, participating; that of Professor Freed Bales on research in the field of small group interaction; and the seminar in the research in problems of social structure, with Professor Stouffer, Dr. Florence Kluckhohn, and the present author as leaders.

These research seminars have proved to be highly fruitful for the direct experience which the students have received in them. Not the least valuable element of this is the experience of seeing their elders on the faculty engaged in the actual process of struggling with research problems to which they quite clearly do not know the answers in advance. It is not exactly a case of washing their dirty linen in pub-

lic; it is merely exposing the actual process of investigation to the direct experience of the student rather than exposing him only to the refined and finished product in published or lecture form.

Another important function of the research seminar is to provide what might be called a "seeding ground" for the student's own independent research project which he undertakes for his dissertation. The very fact that he is getting the feel of how research is actually done and is himself getting deeply immersed in research problems sets him thinking independently. It is a major objective of the department to encourage these interests and to help them develop into full-fledged dissertation problems. To help in giving advanced graduate students first-rate opportunities for their own research development, the department encourages not only finding dissertation subjects in projects which are the centers of research seminars but also their integration with laboratory research projects, whether or not they are the subject of such seminars. An excellent example of such a project is the comparative study of values in five cultures being conducted in New Mexico under a grant from the Rockefeller Foundation. A number of dissertation projects have been worked out and are already under way as part of this larger project. The project provides organized field facilities and includes supervision by members of the faculty. This is one of a number of projects which deserve special mention, among other things, because of the large extent to which it has secured interdisciplinary participation. In this case it has even gone outside the field of the department to include a project by a professional historian, a political scientist, archeologists, and others. However, in addition to the anthropologists, sociologists, clinical psychologists, and one or two social psychologists have been actively engaged.

A word is perhaps in order about the special status of the training program in clinical psychology. This is an integral part of the department's more general program of graduate instruction and related research. The program is designed to meet the full requirements of the Committee on Training in Clinical Psychology of the American Psychological Association. It differs from other such training programs in clinical psychology, however, in that it is treated as an integral part of the program of this department and candidates are subject to the qualifying requirements in the department, and thus it requires work in sociology and anthropology as well as in psychology. The department has been fortunate in its development of the program in clinical psychology in securing the cordial co-operation of the psychiatric branch of the medical profession. Many of its training activities are carried on under the auspices of branches of the Harvard Medical School and affiliated hospitals. Five members of our teaching staff are psychiatrists. It is felt that both on the research and on the training levels this intimate connection with clinical situations and with the medical treatment of patients in those situations is an invaluable asset to the department. It provides tremendous research opportunities and a unique opportunity for cross-fertilization between the "academic" and the clinical approaches to these problems. And the importance is by no means confined to the training of clinical psychologists.

More than in any other branch of the department, the program of training in clinical psychology poses the problem of the relation between the training of men for applied fields and that for the functions of advanced teaching and research. The department has consistently held to the policy that the latter is its proper function. It is, however, in the nature of a rapidly growing field that there cannot be a rigid line between fundamental scientific work and "engineering." Some of our students will become practitioners, just as some of our sociologists will probably be employed in government agencies and some of our social psychologists by polling agencies and the like. But our

primary concern is with the advancement of knowledge in the field of social relations. The direct program of research is one primary means to this goal; the other is the training of the men who are going to be the creative research workers of their own generation.

One final point may be made about the research phase of the graduate student's training. While he must become a candidate for the Doctor's degree in one of the four degree fields and while he must take a formidable special examination in that field, at the research level every encouragement is given him to utilize the resources of all the branches of the larger field in his own research. In the selection of topics for dissertations in particular, those involving major concern with more than one aspect of the field are more likely to receive encouragement than are topics which could be interpreted as "purely" anthropological, sociological, or psychological.

RAMIFICATIONS OF THE DEPARTMENT INTO NEIGHBORING FIELDS

The nature of the field of social relations is such that not only do its constituent disciplines involve complex interrelations with one another, but the boundaries are extremely indistinct between them and the outside academic world in several directions. Through such channels the interests of the department and with them the opportunities open to its graduate students ramify outside its own limits in highly important ways. Three of these may be mentioned. The first is the general field of so-called "area studies," in which particularly the comparative interests and training of the anthropological and sociological groups, but also some social psychologists, find a very important field. Harvard has a Committee on International and Regional Studies which administers two-year programs of graduate study of the Far East and of the Soviet Union. Not only does the Department of Social Relations participate in this program through the service of two of its members on the committee and through the fact that many of its courses are taken by students in the program, but after completion of the regional-studies program it is more common than not for students to go on to a Ph.D. degree in one of the social science disciplines. A number of these students have chosen the field of social relations for this purpose. We therefore are training a small number of people who are both competent regional specialists, including the highly important linguistic training, and competent in the requisite social science disciplines.

This development has been greatly facilitated by two further circumstances. In the first place it has been possible to make a few joint appointments with the regional-studies program, thus focusing faculty interest on the interconnection and giving the graduate student adequate guidance by men who know both sides of the relation between their discipline and regional studies. Notable among these appointments are those of Alex Inkeles, on the Soviet side, and of John C. Pelzel, on the Far Eastern side. The other development is the establishment of the Russian Research Center at Harvard with Professor Kluckhohn as director. The Center has greatly strengthened the available personnel in this area, for example, bringing to Harvard such valuable men in our field as Demitri Shimkin and Barrington Moore, both of whom have become affiliated with the Department of Social Relations. Graduate students, furthermore, who have the linguistic competence have extensive opportunities for research training in connection with the work of the center.

Not the least important aspect of the whole connection between the department and these regional-studies interests is the fact that, through them more than through any other channel, our graduate students are brought into direct contact with work in history, in government, and in economics. This is particularly true of those who participate in the work of the Russian Research Center, which has a

strong group of scholars in those branches of the Soviet field on its staff.

A second direction in which the ramifications of the research and training interests of the department outside its own boundaries are becoming particularly significant is that toward education. This connection has been greatly strengthened since the appointment of Professor Robert R. Sears as a member of the Faculty of Education and as director of the new Laboratory of Human Development. Professor Sears serves also as a member of the Department of Social Relations and teaches its general course on Social Development of the Child. The research interests of the department and the laboratory of Human Development are closely intertwined. A second developing connection between the department and the field of education is the project for the study of social mobility in which Professor Stouffer, Florence Kluckhohn, and the present author are engaged. This study, which is the subject of the research seminar mentioned above, is carried out in connection with several public school systems in the metropolitan Boston area, and members of the Faculty of Education have played an indispensable part in it. For 1950–51, Norman Boyan, a specialist in educational administration, has joined the staff of the project as a research associate to help with the relations of the project's interests to the complex problems of school policy and administration.

The third of the directions of ramification of the department's interests which may be mentioned is that connected with the clinical study of the individual and the problems of mental health. The close connections with our program of training in clinical psychology are obvious and have already been mentioned, including the fact that training of the latter brings them into direct contact with several of the psychiatric institutions in the Boston area. But the relationship is by no means confined to clinical psychology. One member of the department, Professor J. S. Bruner, a social psychologist, has served on the staff of the Boston Psychopathic Hospital in connection with their general research program, and several graduate students in his field have worked there with him. One advanced student of sociology is making a study of certain problems of social organization in the same hospital. A similar connection has been set up at the Massachusetts General Hospital through Professor R. F. Bales joining their staff, in this case a sociologist working in the field of small group interaction. Similar research plans are under way in connection with the Children's and Lying-in Hospitals which will involve research, not primarily in the field of clinical psychology but with an important part of it sociological. Finally, under the auspices of the Harvard School of Public Health, Dr. Erich Lindemann, who is also a member of the Department of Social Relations, has been directing a study, financed by the Grant Foundation, of the problems of mental health in Wellesley, Massachusetts. Though this study has focused on the services of psychiatrists, it has been by no means confined to them. At least one dissertation in the field of sociology is being carried out as an integral part of it, and there will probably be others.

SOME GENERAL CONSIDERATIONS

In terms of the larger setting of the development of social science in modern civilization, it seems to us that the organization of the Department of Social Relations has come at a particularly strategic time. The exact way in which the principal factors balance out will be determined by unpredictable events. It may even be that the whole major development in which we feel we fit will be choked off by political overturns which, whatever their merits in other respects, would make serious work in the social sciences impossible. But even such an eventuality would not invalidate the view that we had come at a particularly strategic time.

The essence of this strategic quality is,

we feel, the fact that two major circumstances are coinciding at the present moment. On the one hand, the internal development of the social science disciplines themselves has, through cumulative events, reached a point where a major configuration (in A. L. Kroeber's terms) has begun to unfold. Certain foundations for a really major process of scientific development have been laid, and, if enough well-trained and capable personnel and resources are devoted to it under reasonably favorable circumstances, results of the first importance will be relatively quickly and certainly forthcoming. It is, of course, quite impossible in detail to predict just what the results will be, in what order, or according to what timetable. But that, if the opportunity is seized, an age of eminent achievement lies relatively immediately ahead for the social sciences, few who have the intimate "feel" for what is going on would doubt.

The second major factor in the immediate conjuncture is the fact that the general public has awakened not only to the need but to the possibility of the development of social science to a degree altogether different from the situation even a short generation ago. We have the possibilities of support and of understanding which enormously facilitate taking advantage of the intrinsic opportunity. The fact that much of the best of research now requires such resources as to need considerable financial support is naturally of great significance in this connection.

An account of such a graduate training program as the present one, aimed at a somewhat wider audience than the small group immediately concerned, has its justification in terms of the need of such understanding of the social sciences. For, given the resources at present available in accumulated knowledge, theory, and research technique, more than any other single factor the future is going to depend on the supply of able and well-trained personnel who are ready to take advantage of the enormous opportunity which is developing. The training of these young people is probably the most important single thing which the members of the present generation of social scientists can be doing. What the few of us could do in relatively few more productive years is probably small compared with what the next generation can do if they have the best possible start.

It is a fortunate situation when it is possible to say that the only relevant claim to special leadership is to serve to encourage others not only to do the same but to improve on what one group has done. We are fully aware of the high quality of training work in the same fields being done at a number of other institutions. Our only regret is that the number is not greater and that all of us, in spite of the great improvement in recent decades, still have such limited resources to devote to the task.

Furthermore, the general state of our disciplines is such that there is no reason to worry that different ways of approaching the problem are current in different institutions. The particular combination of fields brought together in the Department of Social Relations at Harvard has, we feel, very special common foundations, and it is a natural and significant combination. But in organizational matters, as otherwise, our temper is pragmatic. The kinds of ramifications sketched in the last section of this paper show that no one particular definition of departmental boundaries has any definitive standing. Much of our interest could be very advantageously combined with that of economics or with government. Many psychologists feel rightly that certain relations with the biological sciences are of the first significance, and so on. It is, in our opinion, a healthy situation that there should be a number of competing formulas, not just one.

The same sort of considerations underlies what may be stated as a closing note. Our attitude has, it has been noted, been pragmatic. We lay particular emphasis on this fact. We feel that there is a serious danger of a premature stereotyping of programs of professional training, which,

though it may have great advantages in elevating professional standards in a given situation, may still lead to serious difficulties in the longer run. Two examples from neighboring fields may be given.

The high levels attained by medical training a generation or so ago are justly pointed to with pride within the profession. Yet the typical curriculum of the high type of medical school, as it was crystallized in about the second decade of this century, has already shown certain disadvantages. To a social scientist the striking thing is that this curriculum was based on the conception of the overwhelmingly predominant importance of the natural sciences as avenues to the understanding of the problems of health and disease. The great development of our knowledge of what is often called the "psychic factor" in disease and of the dependence of the healing art on knowledge of psychology and, through social science, of the social situation of the patient was just beginning to emerge at that time. It has grown enormously since then; but it has had a very severe struggle to find recognition in the training of physicians. To this day in the actual training program it would seem that it is treated as far more of a side issue than its intrinsic significance warrants. This dilemma was in no small measure the result of the fact that medical training was standardized on such a high level in terms of the "science of medicine" as it was understood in the 1900's. The men of that day did not foresee the changes in their own discipline which were already on the way.

A somewhat similar example, even closer to us, is that of economics. Economics as a professional field, both scientific and applied, took shape just before and after World War I. It was a period when the major development of social science in the field of social relations was just beginning to emerge. By and large the economists standardized their training program in such a way that, though they established very high standards of competence within their rather narrowly defined field, they have tended to set up serious barriers against exploiting opportunities to develop the intimate interrelations with bordering fields, psychology and sociology in particular. A graduate student in economics has such a heavy burden within his own field that he just does not have time to learn much about its neighbors. In many empirical fields of central interest to the economist it seems certain that the contributions from "across the border" are far more important than the kind of training now given to economists would indicate. But in part this situation, like the medical, is a product of the high technical standards of training established within economics itself.

In our own fields we are just coming into the period where the establishment of really high technical standards has become possible. The need to validate those standards by multiplying formal requirements is very strong. And the amount of work necessary for an able graduate student to acquire genuine professional competence is very great; we have no difficulty in filling a curriculum with what most of us readily consider to be minimum requirements. Hence the temptation to say the training program must include so and so, to the point of putting the student in the position where he can do only what is prescribed, is great. Furthermore, once a standardized program gets to be prescribed, it may be difficult for the new developments, which are certain to come but the importance of which we cannot now foresee, to find their place. Perhaps, therefore, *flexibility* should, in setting a standard for graduate training in social science, be given a place almost equal to that of high technical standards as such. The tolerance which has been shown in the relevant professions for such a radical innovation as a Department of Social Relations should be elevated into a permanent principle of policy—to be applied particularly to transcending the formula on which this department is based, once it shall have outlived its usefulness.

A NOTE ON THE ROLE OF BIOLOGICAL SCIENCE IN A LIBERAL EDUCATION

Irving T. Diamond

I

Because the problem of determining the objectives of a general course in biology involves a treatment of the nature of biological science, the nature of the learning process, and the nature of democratic society, the discussion of the problem is complex and agreement is limited. Any attempt to define these objectives in terms of all these considerations would seem, at best, to be a presumptuous starting point for the construction of a general course in biology. Additional precautions are indicated by the emptiness of a discussion of ends when such a discussion is divorced from questions of means and circumstances; when, for example, it is insisted that a course will lead to good citizenship, emotional maturity, and scientific objectivity, the appropriate reaction is suspicion that rhetoric is being substituted for a realistic evaluation of the students' accomplishments.

If, however, the problem of ends is considered in terms of the peculiar or unique contribution to general education that can be made by biological science, then the answer to the question of ends depends upon the unique character of biological science—and the unique character of biological science is *scientific* knowledge of biology. This is a step toward an unambiguous and practical formulation of objectives, since scientific knowing is readily distinguished from other kinds of knowing and, further, scientists are agreed as to the character of the training necessary to obtain scientific knowledge.

By looking at the difference between a scientific and an unscientific understanding of a particular conclusion, the importance and meaningfulness of the distinction between these two ways of "knowing" can best be illustrated. Take, for example, the conclusion reached by Von Mering and Minkowski that extirpation of the pancreas causes diabetes.[1] A scientific understanding of this conclusion entails (*a*) knowledge of the questions asked by the scientist which gave rise to the experiment;[2] (*b*) knowledge of the difficulties in the procedure—the technique of completely removing the pancreas;[3] and, finally, (*c*) an understanding of the design of the experiment which proves the conclusion, that is, of the partial extirpations and dummy operations which constitute the control groups and thus the grounds of the proof. An understanding of the questions asked, the procedure, and the design provide the *operational* basis for the conclusion and thus a

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[1] J. von Mering and O. Minkowski, "Diabetes Mellitus Following Extirpation of the Pancreas" (translation), *Archiv für experimentelle Pathologie und Pharmakologie*, XXVI (1890), 371–87.

[2] The authors state: "The question whether elimination of the pancreas can exert any influence on the processes of digestion and nutrition in the organism has been discussed by numerous investigators. . . . The possibility was neglected that the pancreas may have other metabolic functions besides the secretion of digestive juice, functions which may not necessarily become impaired by ligation of ducts."

[3] The authors state that "the factors most important for the success of the operation . . . are hemostasis, prevention of necrosis of the duodenum, and strict antisepsis." These they describe in detail.

knowledge of its *validity*. Scientific knowledge of a conclusion, then, is inseparable from a knowledge of validity, and anything short of an understanding of the operational basis of the conclusion is unscientific knowledge and can be characterized as "information."

If, for instance, a student could repeat the statement "removal of the pancreas causes diabetes," but if the pancreas means little more to him than a sack connected to a pipe by a tube and removal means snipping the tube, he does not have scientific knowledge. Scientific knowledge might be obtained in this case only after the student is led to an understanding of the basis that a scientist has for speaking of "the pancreas" as a biological part and of the anatomical relations between the pancreas and the duodenum, splenic vessels, etc. Again, if a student could repeat the statement "removal of the pancreas causes diabetes" but had no conception of the results obtained on control animals or even of the role played by the control group, he would be in possession of information but no more; and, aside from the possible practical applications—and it is difficult to predict these, since they are dependent upon the individual career—it is probably no better to have information about the pancreas than to have information about the height of the Empire State Building. The fact that the object studied—the pancreas—is a part of the organism and therefore the "subject matter" of biological science does not in itself guarantee that "knowledge" of this object will be scientific knowledge; unless the conclusion about the pancreas is known in terms of its validity, it is merely a piece of information about an object which can be known scientifically. If, then, Von Mering and Minkowski had simply stated their conclusion, the reader would have information, even correct information, but not scientific knowledge. But the experimenter is obligated to report his findings in a way that can lead to a scientific understanding of them, and the scientist or advanced science student arrives at an understanding by the study of the reports of the experimenter.

The description of scientific knowledge must now be expanded, since no scientific conclusion can be considered for long apart from its implications. Every answer generates new questions and sheds light on old questions. After obtaining results, the task of the scientist is to relate these results to others in such a way that the direction of further inquiry is indicated. For example, Von Mering and Minkowski point out that their findings suggest such questions as the following: "Is the metabolic function of the pancreas shared by other organs?" "What is the anatomical basis for the two kinds of dysfunction found?" A scientific understanding of the extirpation conclusion involves, then, some grasp of how this conclusion generates new questions.[4]

The task of the scientist is still not completed, however, for the results must be interpreted in the light of other relevant conclusions. For example, Von Mering and Minkowski are concerned with the implications of their experimental conclusion for a theory of the genesis of clinical diabetes and for a theory of the function of the pancreas. In a series of steps they reach the conclusion that diabetes is produced, after the removal of the pancreas, by a "cessation of a function of this organ which is indispensable for the utilization of sugar in the organism," and they imply further that clinical diabetes is a failure in carbohydrate metabolism.[5] A

[4] In the case of the question of the structural basis for the "metabolic" function of the pancreas a rough outline is here presented of the steps that lead to this question: (*a*) The function of a structure can be inferred from the abnormalities produced by its removal. (*b*) Removal of the pancreas leads to fat in excreta and "diabetes." (*c*) Acini of the pancreas constitute the structural basis for the digestive function of the pancreas. (*d*) What is the structural basis for this "metabolic" dysfunction? (*e*) One direction of further inquiry is histological examination of interacinar islets.

[5] The authors state that diabetes is a consequence of the disturbed secretion of the pancreas—"be it an absence of a change which the

scientific understanding of these secondary conclusions requires an analysis of the steps taken in the interpretation, since only by such an analysis can their validity be ascertained. Starting, then, with a single biological fact, the discussion of scientific knowledge has led to a consideration of the questions it answers, the questions it gives rise to, the experimental procedure and design by which it is discovered, and now, finally, to its implications for biological theory.

Granted that scientific knowledge and information are readily distinguished and that the former is what the biologist possesses and communicates to other biologists, it may be argued that an organized and coherent picture of the subject matter of biology can be taught without actual training in the judgment of validity, that a separation can be made between having "science" in the sense of a well-structured conception of the subject matter and having "judgment of validity." However, a simple example may illustrate that merely verbal "knowledge" actually leads to confusion, that science and knowledge of validity cannot be separated. If a student had information to the effect that the removal of the pancreas leads to diabetes, what would happen when he is faced with the recent findings that not over 25 per cent of diabetic pancreases show lesions at autopsy, i.e., that clinical diabetes is not associated with lesions of the pancreas? He would be confused, since one of the statements *seems* to affirm and the other to deny a causal relation between diabetes and lesions of the pancreas. "Confusion" is the apt characterization of his state, for he is not in the position of the scientist who *knows* when he is facing conflicting results: such a student does not really know to what extent the results are conflicting or whether the latter result in any way makes the former one questionable. On the other hand, a student with scientific knowledge of the experimental findings would know that the findings at autopsy in no way jeopardized the experimental conclusion —that in fact the question posed in the clinical investigation is quite different from the question posed in the experimental study. He would not be misled by the fact that the Von Mering and Minkowski finding *suggests* the hypothesis that diabetes is caused by lesions of the pancreas; he would know that, since the *validity* of the extirpation conclusion depends upon the experimental design, the only new evidence which could alter its validity would involve a repetition of the experiment in which some inadequacy of the earlier controls was pointed out.

One more example might be given of the exercise of scientific judgment--i.e., judgment of validity, this time a case in which there is a real conflict in conclusions. Although such a conflict creates a problem and the need for organization, the individual with scientific understanding of the conflicting conclusions is not thereby hopelessly confused. What would such an individual do when required to re-evaluate the conclusions of Von Mering and Minkowski in the light of recent evidence that is incompatible with a non-utilization theory of insulin? He would turn immediately to a consideration of their validity. The extirpation conclusion would, of course, stand unaffected, although the problem of exactly why the removal of the pancreas results in high blood sugar would remain. Von Mering and Minkowski's interpretation of their experimental result, on the other hand, is directly under fire, but this is no matter of concern when it is realized that the foundation of the conclusion, "a secretion of the pancreas is indispensable for the utilization of sugar," is quite different from the foundation of the extirpation conclusion. Indeed, the study of the foundation of the interpretation would reveal

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sugar-producing substances of the food have to undergo under the influence of this juice, or be it some influence which this juice is able to exert on the sugar metabolism in the tissues of the organism." They go on to argue for the latter of these two alternatives. It is clear that their list of alternatives is not exhaustive.

that, in setting up alternative hypotheses relating the pancreas to the level of blood sugar, Von Mering and Minkowski have completely overlooked the role of the liver.[6]

The exercise of this kind of judgment and organization is so commonplace, so part and parcel of the everyday activity of the scientist, that perhaps for this very reason it has no major place in the philosophic discussions of scientific method. These discussions attempt to find uniformities or differences in method and then to relate these uniformities or differences either to processes in the mind or to the structure of language or to the real nature of the objects of science. Since it is true that scientists inquire and that the results of their inquiry are scientifically known, without the final resolution of the difficulties posed by the philosophic discussions, it should follow that science can be taught without being committed to one particular philosophic view of the nature of method.

There can be no question that scientific knowledge is attained and that the means for attaining it is the study of conclusions as they are presented to the scientific community; for these presentations must meet the rigid standard of providing the material that is required in order to judge validity. The question of whether or not scientific knowledge can be attained by students at the level of their general education depends on the possibility of guiding them sufficiently in their study. This is a serious matter, since, if it is not possible, the alternative is that general education can provide information and no more. The specialist in science has attained a high level of competence in judging the validity in a certain area of science. For example, conclusions on the relation of hearing losses to places along the basilar membrane rest in part on estimations of the destruction of hair cells, and these estimates, although based on an intimate familiarity with the subject matter, are by no means clear cut or readily communicable. An appreciation of what is involved in the simple statement "There is 'considerable' destruction of hair cells at the base" then takes much experience. The important point is that a large proportion of the conclusions in biology is of a comparable kind and that the experience necessary for expertness cannot be provided in a general course. The possibility of giving the beginning student some training in the judgment of validity is not thereby ruled out; it is possible in a discussion classroom, following the study of a scientific presentation, to raise for the student some of the kinds of questions which may lead him to an understanding of validity. In the case of the experimental study chosen for illustrative purposes some of the most obvious of these are: What is the inquirer trying to prove? Why does the experimenter take out a large portion of the pancreas in some, but not all, of his dogs? Does the experimenter give an exhaustive list of hypotheses which account for the relation between function of pancreas and blood sugar level?

The discussion has brought out two points that are important for the construction of a general course in biological science. The first of these is that the objective of such a course should be *scientific knowledge*. There ought to be no compromise on this point, since to fall short of such an objective amounts to an admission that science can make no special contribution to general education—that science at the level of general education can provide information and no more.

The second point is that scientists are trained in scientific judgment by the act of judging the reports of inquiry; in fact, training in scientific judgment requires use of these materials, since the complete bases for making judgments are contained only in such reports.[7]

[6] Cf. n. 5, above.

[7] This is not to say that these reports are the only materials of any value in scientific training. At the opposite extreme from the actual experi-

II

Granted that, ideally, the teaching of scientific method or judgment of validity and the teaching of conclusions are inseparable, as has been argued above, is it possible, if only for the sake of convenience in teaching, to adopt one particular description of scientific method as a model for ascertaining validity—for instance, teach logical positivism for three weeks and then use this model on some select fraction of the conclusions in the body of the course? Such an attempt might be illustrated by resorting once more to the experiment of Von Mering and Minkowski. The difference between the validity of the conclusion "extirpation of the pancreas causes diabetes," on the one hand, and the conclusions "pancreatic secretions mediate the utilization of sugar" or "the genesis of clinical diabetes involves lesions of the pancreas," on the other hand, are related to the differences between the validity of data and theory. Taking this distinction, then, as the basis for treating the whole question of validity, the pedagogic formula might sound like this: Data alone are certain, since data are validated by controlled experimentation; all theory, however, is uncertain, since theory is an interpretation of data and thus fallible.[8]

Putting aside the consideration that it is equally possible to defend the opposite view that highly developed theories are more "certain" than any sense data could be; even putting aside the consideration that a data-theory distinction cannot be applied unambiguously to all inquiry,[9] there remains a reason why this formula does not do justice to the task of teaching scientific knowing, a reason which at the same time destroys the possibility of any formula describing the nature of validity. It is simply that there is a tremendous richness in the character of the validity of biological data and theory. It is important to note that this insistence on the inadequacy of any one formulation of scientific method, where such formulation has depended on some philosophic position, e.g., a position which makes logic or psychology or sociology, etc., the key to the problem of knowledge, does not imply that validity in science is chaotic. On the contrary, a real challenge is presented to the curriculum-constructor to select readings such that the student arrives at some *organization* of the various kinds of validity in the biological sciences. This challenge cannot be met here; however, without attempting to catalogue different kinds of biological data, a particular slice may be taken to illustrate the magnitude of the pedagogical problem: some data in biology are simply certain sights, sounds, and touches—e.g., the left ventricle *feels* harder than the right ventricle, or arterial blood *looks* brighter than venous blood. Other data in biology can be "sensed," but not without the aid of intermediate steps, such as the microscope or staining techniques. Still other biological data are

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mental reports are summary presentations of conclusions of biology, with little or no provision given to the grounds of these conclusions. However, intermediate between these extremes are those valuable sourcebooks and handbooks which represent the collected efforts of many scientists, each treating his own field. A glance at the way in which they are written indicates the relative emphasis given to the validating bases of the conclusions reported.

[8] Other formulas are readily brought to mind: e.g., the identification of scientific method with the syllogism or syllogistic reasoning, or the identification of science with one side or the other of an "empirical" versus "rational" dichotomy. Cf. T. Andrews, *Methods of Psychology* (New York, 1948), chap. i, for a typical "formula" presentation of scientific method.

[9] Given a particular inquiry, the distinction between data and theory is often the most crucial one to be made; yet it is clear that all conclusions cannot be divided into two categories out of the context of particular inquiries: many theories are taken as data in the development of other theories—e.g., a particular view of nervous integration may be taken as datum in the development of a theory of learning or perception. (Sometimes the word "fact" merely means "true," in which case there is not even an ambiguous distinction left between fact and theory.)

discoverable only by devices which can translate the unseen into the seen: a nerve impulse cannot be seen, but, by placing electrodes along the nerve, a record of the passing of the impulse can be made. And, finally, some data in biology are not recordable unless they are first "made" by the scientist: a puzzle box is built in order to record the behavior of the animal; the datum—the escape—is created in this case by the puzzle box.

How is the student at the level of general education to grasp this richness in biological data? An indoctrination which convinces him that science is based upon observation is hardly sufficient; such a student is no better equipped to judge validity after the indoctrination than he was before. The solution again lies in the direction of close analysis of relatively few inquiries and of frequent discussion sessions in which the student is again and again faced with the questions: "What are the data?" "What kind of data are they?" The discussion section must be supplemented by a laboratory, since some direct experience with the data is required to appreciate the glibness of charts and diagrams and the large roles played by personal judgment and by the intellectual analysis of the subject matter; in short, direct experience with the data is required to appreciate how far removed the raw stuff of biology is from the conclusions which at the same time are valid only in terms of this very same raw stuff.

Since the aim of this discussion is practical, one more concrete example of the task of teaching judgment of validity might be chosen. The data of genetics are of several kinds, two of the most important being data from breeding experiments and data from cytological observation. Now, since some of the concepts and conclusions in genetics have their grounds—their validity—in breeding data, some in cytology, and many in both, the teaching of genetics with the aim of scientific understanding requires that the distinction between cytological and breeding data be scientifically understood. This understanding cannot be achieved simply by telling the student that there are data from breeding experiments and data from cytology which support the conclusion, say, of hereditary units, since the bare statement of the distinction does not indicate the steps necessary to get breeding data or cytological data.[10] In order for a student to understand breeding data scientifically, he must analyze a breeding experiment in which the steps for getting the data are explicitly treated; only by this kind of analysis can a student understand that the facts of biology are not just lying out in nature but are discovered and validated only by virtue of the equipment which the scientist brings to bear upon his subject matter.

The inadequacy of a single formulation of scientific method to the task of training the student to judge validity is even more apparent when one turns to the level of biological theory. Again there is a diversity in the character of validity—a diversity which can be understood by the student only through his own activity. For example, some theories are valid in the sense that they can predict the outcome of certain carefully controlled situations: Mendel's theory of the composition of gametes is valid, in that it predicts the appearance of the offspring produced by back-crossing. On the other hand, the validity of the theory of evolution rests for the most part upon the inconsistency of any other view with large classes of facts in the fields of taxonomy, ecology, embryology, geology, etc. Again the road to understanding lies in the analysis of inquiry; any other path leads

[10] A glance at the steps in the case of breeding data points out the pedagogical problem: (*a*) the selection of a parent-population which can be sharply differentiated into two groups on the basis of the appearance of some character; (*b*) the separation of each filial generation; (*c*) the classification of every offspring according to resemblance to parental type; (*d*) the conversion of the numbers thus attained into ratios.

to verbal familiarity with words like "predictability" or "consistency with the facts"—words which are mere catchphrases when detached from the activity of ascertaining validity in particular inquiries.

It is interesting to note that in the field of psychology the existence of separate "schools" has led to a self-consciousness about method, and, as a result, one can speak of different "conceptions" of validity distinguishing one school from the next. For example, one group of psychologists holds that a good science consists in a number of predictive statements, all of which are deducible from a relatively few basic axioms; when gross behavior is predicted by some hypothesis, then this hypothesis constitutes the explanation for the behavior.[11] Other groups hold that psychological theories must be rooted in the physiology of the organism or that, at any rate, the causes of behavior are not to be identified with predictive statements.[12] Examples of different conceptions of validity in psychology could be multiplied at length; suffice it to say that a scientific understanding of psychology demands the realization that different schools of psychology are asking different kinds of questions and are expecting different kinds of answers. The task for the curriculum-constructor is to make some kind of tentative organization of the diversity in conceptions of subject matter and method and to select papers on the basis of this organization. Since no one organization will be completely satisfactory, it is clear that the job of selection of materials is an ongoing process.

The selection of materials is the real challenge that is presented by a course in biology which is to be part of a liberal education. Although this discussion does not lead to any particular curriculum, some aspects of the problem of the criteria of selection have been touched upon. With the aim of providing the student with scientific knowledge of conclusions, of training him to judge validity, the criterion of selection cannot be a coverage of all the conclusions of biology or a coverage of the important conclusions of biology or a coverage of the useful conclusions of biology, even if any of these were possible. Materials should be selected which afford the best opportunity of raising with the student those kinds of questions which will lead him to an understanding of the ways in which the biologist validates his conclusions; therefore, actual reports of inquiry should constitute the basis of the course. Further, materials should be selected which will enable the student to understand the richness and the diversity in the character of validity: inquiries should then be selected from a wide enough range of subject-matter areas and "schools" that ample opportunity is provided for contrast and comparison.

It is hoped that it has been made clear that the argument against information as the objective is not an argument against the facts and in favor of something else. Scientific knowledge does not exist in a void; it is a knowledge *of* something—it is a knowledge of the facts. The argument against information is indeed an argument *for* the facts—it is an argument for the facts as these facts are *known* by the scientist.

[11] For example, Hull states: "The principle of the goal gradient thus clearly generates (predicts) the preferential choice of the shorter of two alternate paths to a goal. In this important sense the former may be said to explain the latter" (Clark L. Hull, "The Goal Gradient Hypothesis and Maze Learning," *Psychological Review*, XXXIX [1932], 25–43).

[12] Klüver states, for example: "The knowledge of certain reaction mechanisms may enable . . . [the experimenter] to predict future behavior; yet this does not mean that he knows why the animal tends to react in a given way. It is one thing to predict behavior; it is another thing to have some insight into the factors which bring about the behavior we are predicting. One may be fairly safe in predicting that wild or albino rats will under certain conditions prefer large sunflower seeds to small ones. Yet this does not tell us whether or to what extent 'past experience' played a role in setting up this reaction tendency" (Heinrich Klüver, *Behavior Mechanisms in Monkeys* [Chicago, 1933], pp. 2–3).